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VETERINARY MEDICINE

July, 1930

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No. 6
VOL. XXV

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D. M. Campbell, Editor A. T. Kinsley, Associate Editor

Medical science aims at the truth and nothing but the truth.—William J. Mayo.

A good diagnosis is worth many shotgun prescriptions.—W. A. Newman Dorland.

The man who is really sure that he is right, cares very little about adverse criticism.—William E. Towne.

The illusion that times that were are better than those that are, has probably pervaded all ages.—Horace Greeley.

The best evidence of ability is immense capacity for hard work and an intense conviction of its necessity.—Napoleon.

Employ your time improving yourself by other men's documents; so shall you come easily by what others have labored hard for.—Socrates.

In less than eight months, General Gorgas eliminated yellow fever from Havana, where it had been endemic for 150 years.—Franklin H. Martin.

The irregular practitioner is not trained in diagnosis and is interested only in exploiting his method of treatment, not in knowing whether his diagnosis is correct.—William J. Mayo.

It is the little things that matter and where we so often fail.—Lord Lister.

Preventive medicine is more economical than corrective medicine.—John O. McReynolds.

The physician must have faith in himself if he expects the public to have faith in his profession.—James C. Wood.

The glory of medicine is that it is constantly moving forward, that there is always more to learn.—William J. Mayo.

The cow has become an indispensable factor in the welfare of our civilization.—P. A. Fish.

"Medical Ethics" means only "good sportsmanship." Deal gently with your fellows; today's patient may be his tomorrow.—Frank Smithies.

The state of medicine is an index of the civilization of any age and country, one of the best, perhaps by which it can be judged.—Oliver Wendell Holmes.

He who attempts to make nature deviate from her normal physiologic processes may accomplish his immediate object; but it is very apt to be at an exorbitant price.—George Gray Ward.

A. V. M. A. WILL MEET IN LOS ANGELES

The sixty-seventh annual meeting of the American Veterinary Medical Association will be held in Los Angeles, August 26-29, 1930. This will be the third time an annual convention of the Association has been held in California; the first being in San Francisco in 1910 and the second in Oakland in 1915.

Neither the scientific nor the social programs have been announced as this is written (mid-May) but it may safely be predicted that veterinarians are not hiding their light under a bushel or a gold fish bowl either by going to Los Angeles. It is expected that the social features of the meeting will eclipse anything the Association has heretofore experienced and prove a potent influence in attracting veterinarians and their wives from the "East," which in the parlance of the West Coast means Colorado and points Atlanticward.

However, a number of prominent members of the association who have been regular attendants at meetings in the past, will be conspicuous by their absence at the L. A. meeting. These include Chief John R. Mohler, A. T. Kinsley, A. Eichhorn, C. H. Stange, A. F. Schalk and others who will attend the International Veterinary Congress in London, which also will convene during August.

Los Angeles is the metropolis of the Western half of the United States, being one and one-half times as old as Chicago, and two-fifths as populous. It is the "fastest growing city in the world," except of course, New York, Chicago and some others. It contains more native born Iowans than Des Moines, more native born Ohioans than Columbus, etc., *ad. lib.* It is the greatest oil producing and exporting city in the world, and 80% of all motion pictures are produced in or near it. Los Angeles is an inland city and yet possesses one of the busiest ocean harbors on the west coast. Both enterprise and imagination are required for such a feat. In all directions from the city, radiate some of the nations finest highways, making accessible an array of scenery well worth a trip across the continent to see. And, by the way, the full name of the city is, La Ciudad de Nuestra Senora la Reina de Los Angeles. To be able to say it, or sing it, without reference to notes is one of the requirements for joining the local order of the Native Sons.

While the entertainment features of the meeting have not been definitely decided upon, they may include a staggering number of joyous doings somewhat of the following nature, or something just as good:

A breakfast at the Breakfast Club with a broadcast of the program by famous actors and actresses. There is nothing else like the L. A. Breakfast Club.

A tea dance at the world famous Cocoanut Grove.

The annual banquet, ball and president's reception at the Sala de Oro of the Biltmore, the largest banquet room in any hotel in the world, with lavish entertainment by Fanchon and Marco, the producers who stage all the great spectacles for the motion picture industry.

A visit to Hollywood as guests of some of the motion picture producers and the taking of a sound reel; an opportunity to meet a number of celebrities, possibly including Funnyman Rogers, the Oklahoma veterinarian who "had to see Paris."

Of course, there will be a swim at Long Beach and a visit to the Mission San Gabriel Archangel and other 18th century missions, and golf for those who are old enough, presumably at the El Caballero Country Club, and then perhaps an all-day trip over famous boulevards to the city limits and back, and possibly an opportunity to reach Tia Juana on another; with a side trip to Wrigleyville and a ride in a boat with a glass bottom. A theatre party and a bridge party for the ladies and the alumni stag dinners with entertainment by

the Fox-West Coast Theatres, *the* surprise of the convention.

Railroad rates are very low in the summer season and offer a choice of all routes from Banff to New Orleans with a different return, affording an opportunity to see the grandest and most picturesque scenery on the globe.

The Next President

Considerable interest has already been manifested in the choice of president for the association for next year. Three veterinarians of notable achievements have already been mentioned for this honor and the list of entries may not yet be closed. The selection of the president will lie with the California members of the Association and Geo. L. Hart of the University of California may have the position if he will accept it. It is said, however that he is not inclined to permit a consideration of his name in this connection at this time. Friends of Maurice C. Hall, Chief of the Zoological Division of the B. A. I., are urging the consideration of his outstanding achievements reflecting credit on the veterinary profession and his ability to fill the office acceptably. Friends of Col. W. George Turner, senior veterinary officer in the army, are likewise urging the consideration of the Colonel's qualifications to further the progress of the association if elected to the presidency, and pointing to the recent action of the A. M. A. in electing Surgeon General Ireland president of that organization.

You can attend an automobile show and later purchase almost anywhere an exact duplicate of the car you want, and as many as you may need—or can pay for. In the case of live stock this is not true. Animals are not so nearly alike, though specimens of uniformly high quality can be produced, and are being produced to a very creditable extent. The average quality, however, is still far below the ideal. From a study of available data I consider that more than 50 per cent of our domestic breeding stock is obsolete from the standpoint of most efficient production. I am confident that the estimate is conservative.—John R. Mohler.

The proving of bulls and the culling of boarder cows are gradually reducing obsolescence in dairy stock. The poultry industry has forged ahead in recent years, largely by scrapping old methods and utilizing modern production principles, namely, improved breeding stock, culling, and disease control. The growth of the hatchery industry, which involves economies incident to large-scale production, is likewise in step with the modern age. —John R. Mohler.

In industry as in travel, the plans of today become the progress of tomorrow. In the swift-moving era in which we live, there is need to use methods which enable us to meet the pace set by our fellow industrial travelers. Better, healthier, and more useful animal types are a prime consideration. Then let specialized knowledge in live stock husbandry and veterinary science be applied to each problem. Experience is a valuable balance wheel, but new knowledge and its prompt application constitute the motive power by which we advance.

John R. Mohler.

THE FARMER, THE HORSE, THE AUTOMOBILE

Today 52,905,000 acres are needed to supply the food for the horses and mules on our farms and in our cities. That is 18,492,500 fewer acres than were necessary for this purpose in 1920. Had the automobile and tractor not so largely displaced the horse and the mule, and had the use of horses and mules increased as the population has increased since 1900 (at that time we had one horse or mule to every 3.08 persons), there would have to be now 107,162,500 acres under cultivation to feed them. There would be no agricultural surplus; no congressional tinkering with "farm relief."

Castrating Bullocks in India

By J. J. DE VALOIS, Katpadi, South India

In America the primary reasons for early castration of bull calves are to prevent uncontrolled breeding and to secure a more docile, faster growing steer, the grade and quality of whose meat will bring an enhanced price on the market.

In India the evils of uncontrolled breeding are not yet appreciated by the mass. Male cattle are kept primarily for draught purposes. The meat is not eaten by the vegetarian Hindu. The prevailing opinion is that late castration produces an animal of greater hardiness and larger size than if he is castrated at an early age. Early castration reduces the size of the Indian Zebu's characteristic hump. This also is objectionable from the standpoint of general appearance in the Indian farmer's estimation. Consequently, the general custom prevails to castrate male calves when they are practically full grown, which is about 3½ years of age.

One of the greatest advantages of early castration in any land is that it prevents promiscuous breeding from immature and undesirable males. Especially is this true in India where communal and unconfined grazing is in vogue. In a wild state "the survival of the fittest" is an unwritten law. The immature bull calves were driven from the herd by the ruling bull until such a time when they attained sufficient size and strength to battle the leader of the harem. In the domestic state the Indian "cow herds" prevent such battles. The result inevitably is that even if a mature breeding bull were kept, which seldom is the case, the younger, more active bulls prevent the older bull from exerting his influence. Gradual deterioration of the Indian cattle has been the result. An average village cow does not weigh more than 300 pounds and never gives more than three or four cups of milk a day.

The customary method of castration by the Indian peasant is known as "mulling." The grown bull is thrown and tied. Without making an incision in the scrotum, the unexposed testicles are literally smashed into a mass of pulp. Different devices exist for this purpose. Two flat rods operated by a lever may be used. Flat, heavy stones are also used to crush the testicles. This process takes from 10 to 15 minutes and is extremely painful for the animal. In a very short time the scrotum swells up to the size of a football. Very frequently the animal will be too miserable to get up, even when squirrels and other rodents begin to eat away the inflamed parts. Hundreds of these

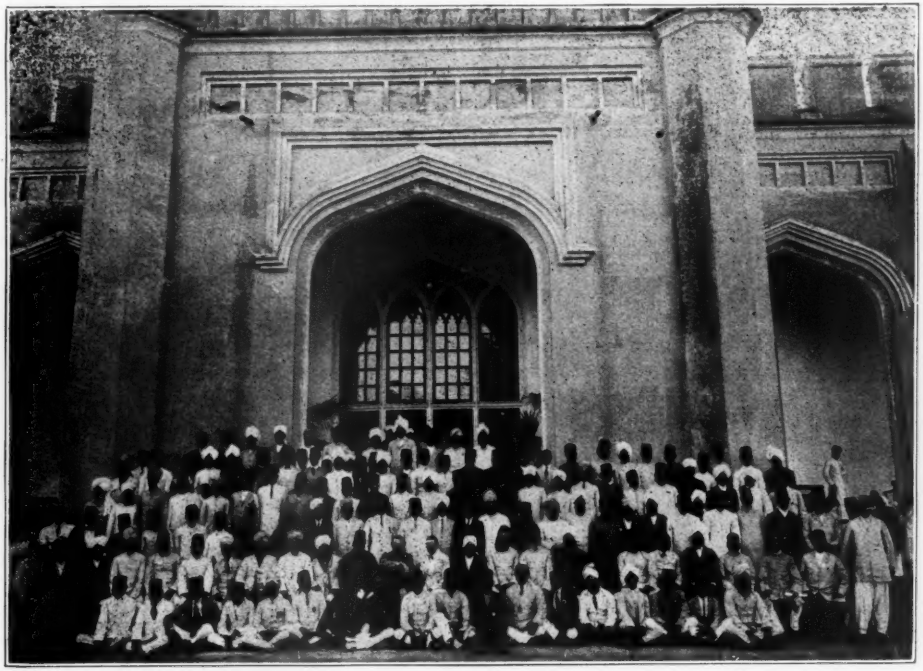
Communal grazing of cattle in one of the public parks of Madras. These city animals are kept primarily for milk purposes and are of a much better grade than the average village cow. Some of these animals show traces of imported Ayrshire blood.

cases are brought to the Civil Veterinary Hospitals every year. The veterinarian finds it very difficult to dissect the pulverized mass and sever the spermatic cord. Even in a normal case it takes a full month for the "mulled" testicle to become absorbed. No exterior drainage is given.

The people of India object to the Western method of removing the testicle because it necessitates the drawing of blood. For this reason the Civil Veterinary Department for the past five years have been using "Burddizzo's Castrator" (Emasculatome). This is an Italian invention designed to sever the spermatic cord through pressure. Here, too, no incision is made, nor is the testicle removed. As the blood supply is cut off the testicle soon atrophies and is absorbed. This method is far more humane. The subsequent inflammation is slight.

The Government has established veterinary hospitals in every district and also have touring veterinarians who perform castrations free of charge by this method. They also advocate the sterilization of bull calves at a year-and-a-half of age which, because they mature so slowly, is before they are able to procreate. Thousands of these operations are being performed yearly. In course of time, this will greatly improve the cattle of India. The Indian farmer appreciates the advantages of the more humane and timely castration. He does not "mull" his animals because of an innate desire to be cruel as some of India's critics would have us believe. The ignorant people have been doing the best they knew how. Now that a better method is introduced and they are being educated to its advantages, it is being adopted.

Comparative data as to the relative merits of early and late castration is very



The Fifth Annual Meeting of the United Provinces (India) Veterinary Medical Society

meagre. Advocates of early castration have drawn the following conclusions from tests that have been made:

Indian bullocks extracting oil from peanuts in a native oil press. The Zebu is hte beast of burden in tropical India. Their pace is slow but sure. The young man standing in the right center recalls the jingle about the "poor benighted Hindu" who for clothing made his "Skin do."

1. That early or late castration does not materially affect the weight of the bullock.

2. That there is a greater proportionate development in the hind quarters of early castrated animals.

3. That the strength is not impaired by early castration.

Demonstrating the use of "Burdizzo's castrator" to a group of Indian Agricultural students. No incision is made in the scrotum. The spermatic cord only is severed by pressure. It is a great improvement over the native method of "mulling".

4. That the docility is markedly improved by early castration. Late castrated "stags" are more stupid and stubborn.

5. That activity is greater in early castrated animals. This is very desirable for working animals.

6. That late castrated animals are better looking to some observers.

A typical country-side in South India. There are no fences or demarcations to separate one farmer's field from his neighbor's. All the cattle of a village are gathered together in the morning by small boys and grazed along the roadsides, in waste places or fallow fields. The individual farmer must protect his own crops. As soon as the field is harvested it is open to everybody.

7. There is no proof of greater hardiness for the late castrated animals.

IN THE NORTHWEST

In the great wheat raising sections of the country combines are used. This machine cuts the heads of wheat off the stalk, threshes it, and it is either put in sacks and sewed on the machine, or a wagon or truck goes along with the combine and the grain is run into this trailer through a long spout.

In the Northwest, as in Washington and Idaho, the wheat section is very rolling, that is, dotted with hills of varying inclines.

The combine cannot be used until the wheat is dead ripe, and in wet summers a lot of grain is lost. On the more level sections, caterpillar and other type of tractors are being used by the big operators, but in many places, horses and mules are the only safe power.

In this part of the country, an average yield of winter wheat is around 35 bushels to the acre, and for spring wheat from 15 to 25 bushels. Of course this varies greatly. A threshing machine man who had followed the game for over 25 years, said that year in and out, the yield had run 22 bushels.

A sack of wheat averages around 140 pounds, or about two and one-third bushels, and the common expression is: "Oh, I had a thousand sacks off that hundred acres."

Oats and barley are sold by the hundred pounds or the ton, not by the bushel, as back east. About twenty-one sacks of oats make a ton, and barley runs about the same as wheat.

Peas have become a money crop in various parts of the west, but the common method of harvesting is to mow them with a mowing machine, rake them in windrows, later shock them, and then thresh them.

This is an illustration of the multiple hitch, the "tying in and bucking back" system popularized by Wayne Dinsmore of the Horse Association of America. Such a team (33 animals) is driven with a single pair of lines attached to the leaders. The others are kept in line by tying in and from going ahead too fast by tying back. Lazy ones are kept from shirking by dried peas propelled from an air rifle in the hands of the driver.

Handling a team of six, eight or twelve horses hitched in this manner offers no difficulties that the competent driver of a two-horse team cannot surmount at his first trial. The Missouri Veterinary Medical Association recently sponsored a demonstration of this sort at the Missouri State fair.

Liability of Veterinarians for Wrongfully Abandoning Case

By LESLIE CHILDS, Greenfield, Indiana

A CAREFUL examination of literature has disclosed but little authority upon the question of the liability of a veterinarian for the wrongful abandoning of a case once undertaken. However, in Boom v. Reed, 123 N. Y. S. 421, this point of law constituted one phase of the case and was passed upon in a clear and instructive manner. The facts and circumstances which culminated in the action were, as taken from the report, substantially as follows:

The plaintiff was a veterinary surgeon, engaged in the practice of his profession, and brought an action to collect for certain services he claimed to have rendered for the defendant in the treatment of a horse owned by the latter. The defendant admitted the employment of the plaintiff, but denied the value of the services and in addition contended that the plaintiff had been so negligent in his treatment of the animal, in not calling as agreed, that he (the defendant) had been compelled to employ another veterinarian, the contention being that under these facts the plaintiff was not entitled to recover.

Upon the trial of the cause it was in evidence that upon the plaintiff's last visit the horse was no better. The animal was at that time, to quote from the language of the report, "throwing himself, getting up and throwing himself continuously. That one could hear him out on the sidewalk, and people complained of the noise."

This it appears was on Monday and the plaintiff, after noting the condition of the horse, agreed that he would call again the next day very early. He did not, however, call the next day, nor at all thereafter, and, it seems, the defendant called in another veterinarian on Tuesday under whose treatment the horse recovered.

The report does not contain any reason for this failure of the plaintiff to call as he agreed to, and it appears that the plaintiff did not offer any evidence on this point. The trial of the cause in the city court resulted in a judgment in favor of the defendant, and against the right of the plaintiff to recover. The case eventually reached the higher court on appeal and in passing upon the liability of the plaintiff, for his apparent wrongful abandonment of the case, it was, in part, said:

Abandonment of Case Held Negligence

"I think, on the evidence in this case, the city court could probably find want of care and diligence on the part of the plaintiff in treating defendant's horse; in fact, great negligence. The evidence produced by the defendant, which the trial judge had the right to believe, showed the plaintiff, being called to treat the animal, and having undertaken its cure, on the day of his last visit—the horse at that time being very ill—agreed to call the next morning very early, but neglected to ever call again. I think the action of the plaintiff in leaving the animal he had assumed to take charge of in such a dangerous condition, and failing to call according to his promise, was such clear negligence as justified the judgment rendered by the trial court. * * *"

In conclusion the higher court affirmed the judgment rendered by the city court in favor of the defendant, horse owner, holding, as outlined in the opinion, that in view of the facts in evidence the plaintiff was not entitled to recover for the services rendered.

It will be noted that in the foregoing case the horse recovered under the treatment of another veterinarian, and the holding was that by his negligence in abandoning the case the plaintiff was not entitled to recover for his services. However, had the defendant's horse died, without doubt, in view of the language of the court, the defendant would have had a good case for damages against the plaintiff, in addition.

This for the reason that it seems the wrongful abandonment of a case, once undertaken by any professional man, will render him liable in damages for any resulting loss or injury. The reasoning of perhaps the weight of authority upon this point may be illustrated by reference to Ballou v. Prescott, 64 Mo. 305, a case of malpractice against a surgeon in which it was alleged, among other things, that he wrongfully abandoned his patient. In speaking of the duty of a professional man to continue his attendance, once undertaken, it was, in part, said:

The General Rule

"The care and skill which a professional man guarantees to his employer are elements of the contract to which he becomes a party on accepting a proffered engagement. They are implied by the law as resulting from that engagement, though it be but verbal, and nothing said in relation to such elements. So, continued attention to the undertaking so long as attention is required, in the absence of any stipulation to the contrary, is equally an inference of the law.

"If counselor at law undertakes the management of a cause, nothing more being said or done than simply an offer and acceptance of a retainer for that purpose, it will hardly be denied that an abandonment of the cause, before its close would be as much a violation of the contract with the client as a neglect to use the requisite care and skill in its prosecution, and the duty of continued attention is equally an implication of the law as that of exercising the required care and skill.

"That the same principles apply to the employment of a veterinarian there can be no doubt. If he is called to attend in the usual manner and undertakes to do so by word or act, nothing being said or done to modify this undertaking, it is quite clear as a legal proposition that not only reasonable care and skill should be exercised, but also continued attention so long as the condition of the patient might require it, in the exercise of an honest and properly educated judgment, and certainly any culpable negligence in this respect would render him liable in an action."

Conclusions

It is believed that the foreging veterinary case, when taken with the rule announced in the medical case just quoted from, constitutes a very clear and instructive cross section of the law on the point under discussion. The sum of the rule thus announced may perhaps be briefly summarized as follows:

That in the absence of stipulations to the contrary, it is as much the duty of a veterinarian to continue in attendance upon a case once undertaken as it is for such surgeon to use the required amount of skill and care in the treatment of the case. And that if a case once undertaken is wrongfully abandoned by the veterinarian he would be liable to an action for any damages that might be traced to such abandonment.

New hospital and residence of Dr. H. G. Stephenson, Independence, Kansas. Erected at a cost of $10,000.

The Clinical and Epidemiological Aspects of So-Called Hysteria of the Dog*

By MAJOR FRANK CHAMBERS, Wolverhampton, England

IN EMBARKING on the difficult task of opening a discussion on such a perplexing disease as the so-called canine hysteria, I am rather in a quandary as to the aspect from which I shall approach the subject. The etiology of the complaint is really the crux of the subject, and it is to try and learn something as to the cause of this disease that most of us are here today. I think that we shall all agree that the treatment is more or less simple and effective and the percentage of fatalities very small. If the disease follows the same trend as it has done in the U. S. A. the mortality will increase the longer the disease is with us. The trouble was first recognized in the Southern States of the U. S. A. in 1918 and gradually spread northwards. It commenced in this country about 1924, and I could not make anything out of the first case that I saw. However, treatment of the symptoms gave a satisfactory result. But when six other puppies followed suit I was more than puzzled. Since that time I must have seen many hundreds of cases of this complaint.

I cannot do better at this stage than read a letter I received some time ago from Professor H. J. Milks, of Cornell University (New York State Veterinary College). Professor Milks says:—

"I am sorry, but there is little actual work published on this trouble. There have been a great many opinions, but no coupling up of this symptom with other diseases. We see it as a result of many peripheral irritations, as almost exactly the same as ordinary fits, and in this connection we think it is a symptom. There is another form of the disease which seems to be almost an epidemic and goes through the kennels, which we cannot otherwise explain. In many young dogs we find this fright disease as a forerunner of distemper, but not always. Personally, from my contact with other veterinarians, I must say that we are not entirely certain of it, but most men are of the opinion that it is a symptom rather than a disease, in most cases. However, we see it in many older dogs, and it is a question why we have such outbreaks, unless it is a specific disease. We have had it in our own kennels here, in which case almost every young dog going through for operation or otherwise came down with this trouble within the neighborhood of a week, and some of them ran into distemper a little later. I feel that there is certainly some connection between this disease and distemper.

"Many other people find it due to food stuff, and a change of food seems to do good; but it is not found due to any certain kind of food, as changes in food have been so wide that frequently where one kind of food has been dropped by one owner, it has been taken up by another.

"I might state that in our meetings here this subject brings up a great deal of discussion, but it does not get anywhere because there are as many different opinions on it as there are men who discuss it."

The statement that cases of hysteria run into distemper after an attack is very interesting, as this also has been my experience in a few isolated cases. I think

* Discussion of a paper on the same subject presented by Professor Frederick Hobday, at the meeting of the National Veterinary Medical Association of Great Britain and Ireland, Aug. 31-Sept. 6, 1929. Reprinted from The Veterinary Record, vol. 9, n. 43.

that the attack of hysteria is quite a separate disease, but that vitality and resistance are considerably lowered in the young dog, allowing the virus of distemper to gain access and produce the definite attack of distemper.

In large kennels and veterinary hospitals it is quite possible that the infective agent of distemper is always present but only succeeds in infecting when non-immune devitalized subjects are present.

The name "hysteria" is not exactly a good one and I am inclined to add the term "specific," as Sewell has done, until a better one is thought of. The American designation, "fright disease," is really a better name, for it is the one characteristic symptom of the complaint.

The pathology of the disease is as yet obscure. I cannot agree with Milks that the attack is in the nature of a convulsion. With convulsions associated with teething in young animals you are all familiar, and they are quite different from the symptoms shown during an attack of hysteria. Predisposing causes include any condition affecting the nutrition of the brain, such as exhaustion, anemia, malnutrition or any disease of the gastro-intestinal tract. The conditions as set down by Milks in his paper on "Convulsion in Dogs," as the causes of convulsion or fits are: dentition, indigestion, intestinal parasites, pain, parasitic otorrhea, excitement and unknown causes. Many veterinarians believe that the disease is only a syndrome and not a disease entity. It has also been associated with improper feeding, lack of vitamin B, botulism, hook worm disease, etc. It is well known that this disease will attack either sex. It is mostly seen in large dogs, such as retrievers, Alsatians, etc., and in large kennels where recourse has to be made to patent biscuits and meals and where there is no great variety in the diet. One seldom sees it in a dog that is table fed, that is, the small household pet that consumes the scraps and never gets meat-containing biscuits.

William Lintz, M.D., writing in the August number of VETERINARY MEDICINE, describes the condition as hyperkinesia—hyper, a prefix signifying above, beyond; kinesia, meaning motion sickness. He states that it is a definite disease, not only by the exclusion of other diseases, but particularly by reason of the fact that he was able to inoculate healthy dogs with blood taken from diseased animals and very promptly reproduce the disease. Numerous cultures were made from the blood, brain, spinal cord, and every tissue and organ. The most constant finding was a gram negative motile bacillus. From his description of the disease encountered in his researches amongst the dogs in one kennel only, I am convinced that he was not dealing with specific hysteria, but the gastro-intestinal form of distemper. All his cases commenced with vomiting and intestinal disturbance of an acute type. The teeth were coated with dark-colored mucus and the fits which supervened were of the epileptic nature. In the absence of any research work with positive findings one can only surmise as to what is the actual cause of the disease. I have a distinct leaning towards a specific toxin which is formed or gains entrance through the gastro-intestinal canal. The production of hysteria by the presence of the ear mite does take place in a very small number of cases, but these form a very small percentage of the whole. For some time past I have made it a routine measure to examine the ears with a Mayo electric auriscope fitted with a magnifying eyepiece. Any case of parasitic otorrhœa is easily recognized. Many hundreds of cases of hysteria have been seen where the ears were normal and many cases of hysteria have been treated by ear medication alone without curing the complaint. *Vice versa,* one sees every day dogs and cats whose ears are teeming with ear mites and yet they have never had an attack of hysteria. One can find the parasites in 95% of cats examined and yet how rare it is to see a cat with hysteria.

Vitamin deficiency has been blamed, but a perusal of the literature dealing with experiments concerning this subject does not help one very much. The researches of Goldberger, U. S. A., have shown that vitamin deficiency produces symptoms of canine typhus and not hysteria. [NOTE.—Certain of the dogs used in Goldberger's experiments did exhibit symptoms of fright disease before the attacks of Stuttgart Disease developed, suggesting that fright disease may be a mild or precursory form of vitamin P-P deficiency i.e., of black tongue. Evidence supporting such a hypothesis is seen also in the relief afforded affected animals by changing to a diet of raw meat, in the general agreement that the disease is not infectious, and finally in a report recently published stating that brewers yeast "a lump of the size of a walnut daily" constitutes an effective preventive and treatment for fright disease.—Ed.]

I do not consider that the disease is infectious in the true sense of the word, but one is at a loss to explain why cases of this disease are seen in dogs one or two days after coming home from a show when the kennels have never had a case before. It cannot be pure coincidence, for it happens too often and with too great a regularity. Outbreaks in large kennels have been seen, but rather than blame a common infecting virus I would suggest the same toxic agent to be present in the common ration. In cases that occur after shows it may be that the toxin or virus is present in the system and the emotional or devitalizing influence of the show lowers the vitality and allows an attack to take place.

In spite of those who are emphatic that the feeding of dog biscuits is not to be blamed for the production of this obscure complaint, I have seen many attacks of hysteria stop when the biscuits have been stopped and recommence when these biscuits were fed again.

Is this due to a botulinus toxin caused by changes of a putrefactive nature in the

A prize racer feeding her litter of nine puppies, estimated to be worth $1,000 each

meat content of the biscuit? Is there some protein present which becomes absorbed into the blood stream in an improper form and becomes dehydrated and precipitated in the capillaries of the brain with its attendant result? These questions can only be answered by organized research.

Of recent years we have seen and read numerous articles concerning work done on diseases or symptoms produced, or thought to be produced, by diets deficient in calcium. Most of the work appears to be done on small laboratory animals and the cow. But deficiency in calcium, whilst appearing to affect the young animal, does not seem to produce ill-effects in the older animal. As a rule, animals suffering from calcium deficiency become affected and do not "go off the deep end" as dogs do when affected with hysteria.

In February, 1927, a letter appeared in the *Field* from Colonel Badcock, in which he described his experiences with hysteria. Apparently, owing to attacks of hysteria, he had put his dogs (gun dogs) on to horse flesh and baked bread. As the hysteria continued, he tried adding to the ration plenty of tallow. Soon after this was fed the hysteria disappeared and did not reappear. He therefore, as a layman, explains the cause of hysteria as due to diet deficient in tallow.

Regarding treatment, those few cases that are due to the presence of ear mites are easily recognized, and proper treatment is usually quickly efficacious. For those cases belonging to the other variety, and they greatly preponderate, I have adopted Spicer's treatment with unqualified success. Instead of using normal saline I prefer to use an artificial blood serum. Large doses of potassium bromid are sometimes given at the same time, but this is not absolutely necessary. In the U. S. A. they are employing gastro-intestinal lavage largely, using a strong alkaline solution. This would have a similar effect to the subcutaneous injection, with the additional advantage that the lumen of the intestines would be cleared of any toxin that might be therein contained. A certain amount of the fluid would be absorbed into the blood stream and have the effect of a hydrator.

I am afraid that my remarks have been rather disjointed, but must excuse myself with the statement that the whole subject is very much disjointed and it requires proper research to place the pieces in their proper place, so that this most interesting puzzle may be plain to all of us.

EMBOLISM CAUSES LAMENESS IN A HORSE

I was called to see a horse that, when left standing in the barn, is apparently well, but when exercised he goes lame on the left hind leg, and appears to suffer considerably, as he breaks out in a profuse sweat.

There is a feeble pulsation to be felt in the artery on the left side, by an examination per rectum, while the pulsation in the corresponding artery on the right side is full and strong.

I have had no success so far in treating it. Can you suggest anything?—C. A., Wisconsin.

Reply: Your patient is suffering from a thrombosis in the artery supplying the left leg. If it is a valuable animal, turn out to pasture for the summer; collateral circulation may to some extent overcome the local oligemia. However, the prospects that other portions of the clot in the aneurism that probably exists farther forward will break away and block the collateral circulation are good so at the best the prospects for recovery are not hopeful.

In 1887 Bruce, a British army medical officer, discovered the organism which causes malta fever in goats and undulant fever in man. Ten years later, B. Bang, a Danish veterinarian, isolated the organism causing abortion disease in cattle. Twenty years later, in 1917, Alice Evans, an American bacteriologist discovered the identity of these organisms.

Recent Observations on Internal Parasites of Poultry*

PARASITES may be a very important factor in diseases of poultry and their prevalence appears to be increasing. An example of this is seen in the feather mite, *Liponyssus silviarum*, which until a few years ago was seldom found in this country but is now becoming increasingly prevalent. This mite lives on the bird at all times and in this differs from the ordinary chicken mite or red mite, which visits the bird only to feed. It then crawls into cracks and filth on the roosts and walls of the chicken house.

Manson's eye worm, *Oxyspirura mansoni*, is another parasite of chickens that is giving considerable trouble in some sections. The cockroach which serves as the intermediate host of this parasite, is very widespread, and there is a possibility that the eye worm may extend to all sections where this species of cockroach occurs.

The capillaria is another parasite that has only recently assumed importance in poultry raising. Four species are found in chickens. They may be found in the crop, intestines and ceca. The *Heterakis gallinae*, or cecal worm is a big factor in the dissemination of blackhead, which is very fatal to turkeys. The chicken acts in the capacity of carrier and, as is well understood by turkey raisers, turkeys cannot be successfully raised on ground to which chickens have access.

At the present time, the most important parasites affecting poultry are the ascarids, tapeworms and coccidia.

Taenia

Twelve varieties of tapeworms occur in chickens in this country. They may be roughly divided into those microscopic in size and those macroscopic in size. This, of course, is a non-technical classification.

All of the tapeworms require intermediate hosts, but not all of these hosts are known. Tapeworms are segmented and bisexual. The adult bird passes the segments of these worms in the droppings. After a time the segments disintegrate and the eggs which are enclosed in them contaminate the surroundings. They must, however, be ingested by an insect host and pass through a stage of their development in this host before they are again infective for birds. Earth worms, slugs (snails), ground beetles, tumble bugs and house flies take in the tapeworm eggs in feeding upon any food that may be contaminated with them and the larval stage (cystic stage) is developed in these hosts. When any of these intermediate hosts, earth worms, snails, beetles, flies, etc., containing the cystic stage of the tapeworm, are eaten by the birds, the cyst-membrane is dissolved in the intestinal canal and the released head attaches itself to the wall of the intestinal wall by means of hooks. It then proceeds to develop into the adult worm and to produce segments engorged with eggs, thus concluding the life cycle.

It is difficult to say just how much birds are harmed by adult tapeworms. In a given flock some birds in splendid condition may be found harboring hundreds of tapeworms, and scrawny ill-kept birds in the same flocks, may be found to harbor few if any tapeworms. However, there is believed to be a loss in egg production and at times a paralysis occurs that we cannot attribute to anything else than tapeworm infestation. Some of the tape worms of chickens are very small and exceedingly difficult to see. Some in fact, cannot be seen without magnification.

*Notes from an address by R. E. Rebrassier, Columbus, Ohio, at the Fifth Veterinary Conference, College of Veterinary Medicine, Ohio State University, March 19-21, 1930.

A knowledge of the life cycle of a parasite is essential to successfully working out any measures for its control. We can suggest methods but they cannot always be carried out. Control methods must break into the life cycle at some vulnerable point. Ordinarily it is best to strike at the intermediate host. In the case of tapeworms, for example screening will prevent infestation from house flies. Using a floor of hardware cloth will prevent infestation from beetles and earth worms. These methods are successful when they can be applied, but unfortunately, they are not always practical.

Round Worms

The large round worm of poultry, *Ascaridia lineata,* inhabits the intestinal tract and the eggs pass out with the droppings. No intermediate host is necessary for this parasite, but the eggs must remain outside of the host, that is under atmospheric conditions, to develop into the larval or infective stage. This development requires several days and this offers one point of attack against this parasite.

After the eggs have developed to the larval stage, they are taken in with contaminated food and water and the bird becomes infested. The immature larvae live in the crypts in the mucous membrane and feed and develop rapidly. It is in this stage that the parasite is most destructive and the most harm is done in chicks six weeks to three or four months of age. Older poultry are not only extremely resistant to infestation by this parasite but they appear to be unharmed by it. The faculty that enables mature birds to resist infestation is not understood. It may be due to an age resistance of local tissues, or it may be due to some other cause entirely unknown.

The symptoms produced by ascarid infestation in the young are sluggishness, inappetance, anemia, paralysis and retarded growth. Control methods as indicated in the foregoing, consist of course, in good sanitation and measures that will reduce the number of ova, and measures for the protection of birds from infective eggs. There is one advantage in the control of these parasites, that we do not possess in the control of infectious diseases, and that is that one egg will produce only one parasite. In bacteria as you know, an infinite number may develop from a single organism.

As mentioned previously, contaminated ground continually reinfested, is the chief source of infestation and a thorough cleaning of this every seven days will prevent infestation of birds because it will not permit any of the eggs to reach the infective stage.

Coccidia

Coccidia are unicellular animal organisms just as bacteria are unicellular vegetable organisms. That is, a coccidium is a one-celled animal and a bacterium a one-celled plant. Coccidia differ from tapeworms and round worms in their life cycle, but like them, must pass one stage of their existence outside of the bird, and on the other hand, they resemble bacteria in that vast numbers of the asexual stage may be produced in the bird from a single individual. Infection with coccidia may result in any one of three conditions, (1), death; (2), chronic disease; (3), recovery and the possibility of becoming a carrier.

Four different species of coccidia have been reported in poultry. Two of these are pathogenic and two are non-pathogenic. Fortunately, the coccidium pathogenic for the sparrow is not infective for chickens. Thus, one means of spreading this organism that would otherwise cause us great concern, is of no importance.

Parasiticides

There is much difference of opinion as to the proper treatment of parasitisms in fowls. I do not believe we have an effective treatment for the elimination of tapeworms in chickens. Kamala gives varying results and not infrequently removes the bird along with the tapeworm. Chandler in Michigan has reported excellent results from the use of iodin vermicide. Others have reported unfav-

orable results from the use of the same remedy. Nicotin sulphate is the most commonly used anthelmintic against ascarids. The results, however, are not always satisfactory. Tetrachlorethelene has been only partly successful in our hands.

We have no preparation that can be recommended with any degree of confidence for the treatment of coccidiosis. Milk and molasses have been used with varying results.

IMPORTANCE OF ABORTION CONTROL*

Dairy products have been very important throughout the history of mankind, but dairying has really been an industry only within the memory of middle aged persons now living. The dairy products of the United States are worth $3,000,000,000 annually, an aggregate of 25% of the value of all agricultural products.

The principal dairy product from central Ohio east is fluid milk. The middle west section of the country is the chief butter section although the far west produces much butter and will be called upon to produce more. It is not yet self supplying and like the east, must call upon the middle west for butter.

Every industry has its good and bad periods, but no other branch of agriculture has so little fluctuation as has dairying. A panic would be produced if our city homes were deprived of milk for twenty-four hours. In a survey of 100,000 children in Los Angeles, 80,000 were getting milk and butter regularly and were on the average, two years ahead of those who did not get milk and butter regularly. Disregarding the humanitarian aspect of the problem, think of the economic burden of maintaining those children two extra years in school.

Thirty-five cents of every food dollar should be spent for dairy products for the best results in health, growth and efficiency. At the present, only about 20c of every $1.00 spent for food is spent for dairy products. This percentage, however, is increasing. We are now producing 125 billion pounds of milk annually from fewer cows than we produced 80 billion pounds ten years ago. Dairying has made greater progress in this period of time than any comparable industry.

Seven million dairy cows or a little more than one-third of all of them, are what are known as boarder cows. They don't produce milk enough to pay for their keep. I confidently believe that one-half of these boarder cows are made unprofitable by abortion disease. It is the veterinarians' job to find these diseased animals and to eliminate them and stop the spread of this disease. The veterinary profession is of genuine economic importance to the dairy industry.

* Notes from an address on "The Farm Paper Viewpoint of Abortion Disease Control," by E. H. Harmon, Associate Editor, Successful Farming; Eleventh Annual Veterinary Conference, University of Illinois, Feb. 10-12, 1930.

The cattle industry of Colombia, South America, is one of the leading industries of that country. The principal forage crop is Johnson grass and one and one-half acres is sufficient to fatten two steers annually. The grass is very nutritious and is pastured the entire year, the feeding of grain being unknown. The cattle are descendents of Holland cattle. They are usually marketed when four years old and will weigh about 1050 pounds. These cattle are all colors and have quite prominent horns. There is a tick fever but it is apparently not as fatal as in the United States. The cows are good milk producers, it being a common practice to milk the cows once a day, the calf subsisting on the remainder. The milk is used commercially to make cheese. On one ranch 6,000 cows are milked once daily for the production of cheese. Cheese is consumed in large quantities by the natives and it is also exported.

We shall welcome the advent of more poultry veterinarians; it will mean an enlarged practice for them and relieve our staff of routine work which can be profitably utilized for research.—P. A. Fish, Dean, N. Y. State Vet. Col.

Obstetrical Operations

By E. T. BAKER, Moscow, Idaho

ARRIVING on the scene of action any time of day or night, usually about four a. m., we find our patient standing up or lying on its side. If we want to be scientific, let us say the patient is in a recumbent position, giving vent to a good-sized "beller" every now and then.

We take in the situation with an eagle-eyed glance, and remark if the cow had spent the last nine months' picking out the worst position, and the worst location she could find to calve, she would have landed in this same identical spot.

While the owner is trying to rustle a little warm water, we figure out a place to attach our wire stretchers. We carry along two stretchers to keep each other company, and, in case something goes wrong with one, we can quickly switch to the reserve.

We also carry three stout halter chains with double snaps on each end. This gives us plenty of length, and we can use barn sills, posts, etc., to attach the stretcher to.

We have a ten-quart aluminum bucket, and when the water appears, we carelessly throw in an ounce or so of aseptogen, and then place a couple 30-inch obstetrical chains in the aromatic solution. By not using the cresol antiseptics we do not smell like a stock car that has been recently disinfected.

Next, we give our patient some medicine. She receives it as a drench if standing up, or on the tongue via a dose syringe if lying down. We may give a hypodermic injection if there is extreme weakness or nervousness.

We like to do this first, because in a finely bred cow, like a Jersey, there is always danger of having an eversion of the uterus if the animal has been in labor all night.

We usually give our regular drench of rumen tablets which acts as a laxative and stirs the torpid intestinal tract into action. We use plenty of corn syrup as this does not seem to hurt the patient.

We now don our rubber suit, and with everything ready, make a preliminary examination to see what we are up against. We quickly outline our method of procedure, and when we get busy we try to work fast. Our arms are strong at the beginning, and the quicker we can get the fetus out, so much the better. The chances are in favor of saving the calf, if alive, and one's arms tire quickly.

If the cow is standing up, so much the better. However, she usually takes a bovine notion to lie down just about the time the fetus gets into a normal position. We like to slip a bale of hay or straw under her abdomen, so that if she does lie down, her hindquarters are highest. Repelling and turning can then be done much easier. It saves about four dollar's worth of horny-handed toil and profanity when lying on one's side and pushing against a thousand pound animal.

The most common cause of dystokia is a foot or the head turned back. Posterior presentations are mean to handle, when one hind leg is bent back under the belly of the fetus. You then have to repel it in order to get this limb.

With the body straightened out, and the limbs normal, we pull one foot out as far as we can and attach a chain to the fetlock. If possible, we attach a chain to the other foot at the same time. Gentle traction is now used on one limb only. We do this because one hip or one shoulder can be slipped out much easier than both, when they are apt to wedge.

In case the fetus is dead, and emphysematous, we eviscerate or at least let out as much gas as possible. We never cut off a leg, because that is not only a

landmark but it gives us something to pull on.

If the calf is alive, it is remarkable how much traction it will stand, provided the operation only consumes a few minutes.

If you find a monstrosity, inform your client at once, and destroy the animal with his permission. Then make an autopsy and demonstrate you know what you are talking about. This is better than half a day or night's unsuccessful work.

We usually do not remove the fetal membranes but insert a couple uterine capsules. We always caution the owner to watch out for milk fever, eversion, blood poison, paralysis and impaction.

We have found in over a thousand cases of dystokia that quick work after you once begin is the secret of success. Don't "fiddle" around and dissipate your strength. The owner loses faith in your ability, and the more you "mess" around in an already irritated uterus, the worse it is for the patient.

Our most difficult cases are in small heifers that have been bred to rather large sires, such as Holsteins. Here we may have a normal fetus, but just about three sizes too large for the pelvic outlet. If the owner, his two brothers and father-in-law have pulled around several hours, we merely say we think we can get the fetus all right, but the mother may die getting well. This teaches them to call a veterinarian at the outset instead of as a last resort.

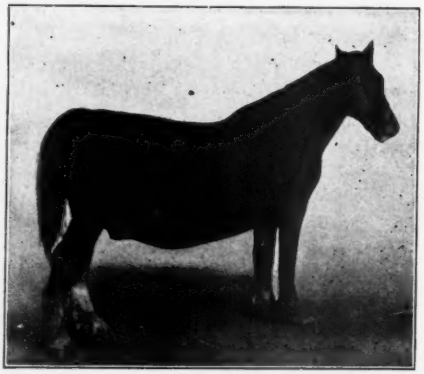
In our experience with over a thousand cases we have noticed Holstein cows have more trouble having normal but too large calves, while Jerseys are more prone to various complications and to die getting well. The beef breeds supply the majority of monstrosities.

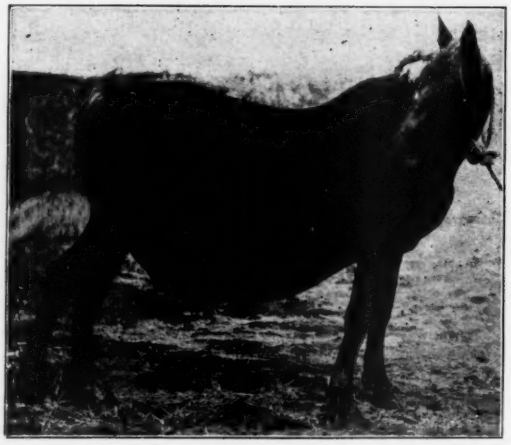
Obstetrical operations in large animals are no cinch. It requires a lot of strength at the right time, and the ability to take advantage of all the "breaks." Pull only one leg at a time, until the knee or hock, and shoulder or hip slips by the pelvic outlet. Sometimes raising the cow's upper hind leg will help.

Learn to differentiate a posterior from an anterior presentation. This sounds simple, but, unless one can feel the tail or the ears, the hips and shoulders feel alike. Also, one may mistake the scrotum for the ears. When the owner asks, as he always does:

"Which way is it comin', Doc?" stall around until you are absolutely sure. To reply it is arriving behind in front, and then have the head pop out first requires a lot of explaining for which you can't collect anything extra.

Another thing, be confident of your resources. Rely on your good right arm,





instead of a lot of trick instruments. The baseball player who goes to the plate confident he is going to swat the pill, usually does not fan out. Since our baseball days are over, we keep in good trim by swinging a sixteen pound bowling ball down the Elks' club alleys, and as long as we can average around 190 lbs. on the hoof, we don't worry about obstetrical operations.

Concluding this unscientific article on one of the every day problems of practice, remember each case is different. But, above all, work fast, after you once begin.

RUPTURE OF THE PREPUBIAN TENDON

The accident shown in the illustration occurs in both the mare and the cow, but far less frequently in the latter than in the former animal. The prognosis in the mare is quite unfavorable and the foal is almost sure to perish. However, the mare may live through the pregnancy and constitute a useful breeding animal afterwards and perform slow work. Such an animal, however, is so unsightly as to be objectionable to most owners.

The cow, on the other hand, is quite likely to live and the chances for saving the calf are fair. The position of the udder following the accident is of course, such as to destroy the usefulness of the animal as a milk cow.

Rupture of the prepubian tendon is preceded by edema of the abdomen. The veterinarian may not be called for this but if he is called, to see an animal with an impending rupture of the prepubian tendon, much can be done to prevent the final catastrophe by fitting an abdominal support and directing that the animal be fed lightly on concentrated foods, thus reducing the bulk in the abdomen.

Since the accident occurs only in advanced pregnancy this special care is required for only one to three or four weeks. Premature delivery is aso to be given consideration.

Williams states, (Veterinary Obstetrics) that sometimes the skin and muscles do not suffice to stay the progress of the rupture and evisceration occurs, necessitating immediate destruction of the patient.

Meadow Death Camas Poisoning

By L. H. PAMMEL, Ames, Iowa

In parts of the western ranges many cases of poisoning are reported from Death Camas. Dr. C. Dwight Marsh and A. B. Clawson state that there is considerable difference of opinion among botanists in regard to the number of species of Zygadenus. The four species recognized are grassy death camas, *Z. gramineus,* foothill death camas, *Z. paniculatus,* mountain death camas, *Z. elegans,* and meadow death camas, *Z. venenosus.*

These authors find that much that has been written about meadow death camas is incorrect. The *Z. venenosus* occurs from western Washington and southeastward to parts of Idaho, western Utah and southwestern to southern California. The authors summarize concerning poisoning from this species as follows:

Zygadenus venenosus (meadow death camas) is the species of death camas that is especially characteristic of the states bordering on the Pacific.

The plant affects sheep more than any other class of animals. Many horses, however, are poisoned and some are killed. While it is poisonous to cattle, few are injured under range conditions. Swine are probably not harmed, because they promptly expel the plant by vomiting. Z. venenosus is about equally toxic with grassy death camas, *Z. gramineus,* and these plants are three times as toxic as the Great Basin foothill death camas, *Z. paniculatus,* and seven times as toxic as the mountain death camas, *Z. elegans.*

The symptoms of poisoning are as follows:

Symptoms in Cattle

As only two head of cattle were made sick, no final conclusions can be drawn as to the effect on these animals as compared with sheep.

Neither of these animals was salivated nor nauseated. Both exhibited weakness, one of them being unable to rise. Both had a lowered temperature and one labored breathing.

Symptoms in Swine

The only symptom exhibited by swine was vomiting. In this connection it is a matter of interest that many authors state that swine are not poisoned by Zygadenus. If this is true, it may be inferred that these animals do not suffer from the plant because its emetic action disposes of the material so completely that no further symptoms appear. These experiments, however, do not positively confirm this, for these pigs ate only very small quantities, and the vomiting occurred in one case one hour and 10 minutes after the feeding, in another two hours and 40 minutes, and in the third case at some time after four hours and 12 minutes. While it seems probable that the vomiting prevents serious poisoning, it may be possible that if the animals had eaten larger quantities, enough might have been absorbed before vomiting to produce other symptoms and possibly death.

Distinctive Symptoms

The outstanding symptoms, then, are salivation, nausea accompanied with vomiting, low temperature, irregular pulse, and muscular weakness. These, with the exception of the low temperature, are the symptoms common to all the species of Zygadenus. With Z. gramineus there was a high pulse and respiration rate in very sick animals. This was not observed in the Z. elegans and Z. venenosus cases and was observed in only one of the Z. paniculatus cases. This is explained by the fact that Z. gramineus produces much more acute and serious cases of poisoning than the other species, although the toxic doses of Z. gramineus and Z. venenosus are practically the same.

SWEET CLOVER BLOAT IS SERIOUS MENACE

There has been a great deal of complaint in Iowa concerning sweet clover bloat. The following item in the Des Moines *Register and Tribune* states the case fairly.

"More trouble from sweet clover pasture, resulting in bloating of cattle being pastured there, is reported this spring than ever before in the history of the crop in Iowa.

"Losses have been particularly heavy in the central to northern and northwestern Iowa counties where the crop has been introduced recently and the acreage greatly increased. The severe losses experienced in some of these counties is likely to result in a decrease in acreage, although the crop is highly regarded as a soil builder. This is particularly true in Greene, Webster, Boone, Wright, Sac, Humboldt and Calhoun counties while in Audobon, Guthrie, Cass, Montgomery and Adams in western to southwestern Iowa, the reports indicate much bloating and some loss.

"Different explanations are given for this unusual amount of trouble. One version of the trouble is that the percentage is but little higher than usual but that more farmers are using sweet clover pasture. This is disputed, however, by many observers who allege that the percentage is much higher than usual.

"The heavy rainfall this spring is blamed for some of the difficulty. In line with this theory is the fact that in the far northwestern counties where the spring has been relatively dry, there has been less bloating than in central Iowa. In O'Brien, Clay, Palo Alto and other counties in that section of the state many farmers are pasturing their cattle on sweet clover with little or no trouble.

"Where the cattle are bloating badly there seems to be no remedy or preventive that is effective. Not only do they bloat on sweet clover but alsike and even medium red clover frequently prove almost as bad as the coarser clover.

"Among the means of warding off bloating, veterinarians and experienced live stock men have advised among other things the following:

1. Have dry feed such as a hay stack or a straw stack available.
2. See that the cattle have ready access to water.
3. Keep salt before the cattle at all times.
4. Mix limestone with the salt.

"While some of these suggestions may help, none is infallible and farmers who have taken every known precaution have suffered losses.

"Some of the dairymen who are pasturing sweet clover stable their cows every evening and figure that removal of the cows from the pasture in the late afternoon keeps them from bloating."

Much has been written on the subject of sweet clover poisoning in recent years. Long ago it was recognized in Europe that sweet clover is more injurious than other clovers due possibly to *cumarin.*

Bloat occurs not only from sweet clover but sometimes from white clover. The writer recalls having seen several cases on a farm in Wisconsin many years ago when the pastures were covered with white clover.

Probably the unusual vigor of both sweet and white clovers this year is responsible for the frequent cases of bloat. Under ordinary circumstances when sweet clover is properly prepared and cured, there is no danger from bloating. It is an excellent forage plant and can be used when dried, as hay, except under those conditions where it produces extensive spontaneous hemorrhage.

Why some sweetclover hay should cause subcutaneous, subserous and intramuscular hemorrhages in cattle to which it is fed is not known. Schalk of North Dakota thinks it is due to a mold on the hay but has not identified the species. Not all moldy sweetclover hay is harmful.

L. H. Pammel.

PULMONARY EDEMA

In December, 1929, I was called to see 157 short yearling steers of which four had died, and by observation we thought that all but one were sick. Autopsy revealed the lesions of pulmonary edema, in the acute form. All the steers evidenced clinical symptoms of pulmonary edema.

The entire 153 steers were vaccinated with pulmonary edema bacterins (Kinsley). While vaccinating we separated the sickest steers from the others, 29 in number and moved them to the barn for special care, at the same time expecting several of these to die. One died that night.

The third day the 152 were revaccinated. An improvement was seen in the entire herd, but the 28 that were isolated were still very sick. The 28 were vaccinated the third time on the seventh day, when ten steers were turned out with the herd. The remaining 18 were vaccinated the fourth time on the twelfth day and 9 more steers were turned out. The remaining 9 were vaccinated again the fifth time on the seventeenth day, when they were also turned out with the herd.

Only one steer died after the first vaccination.

Conclusions.—Good bacterin, constant vigilance until the trouble is passed, usually gives satisfactory results. However, one vaccination is usually insufficient. Therefore, the herd should be observed on the third, fourth, or fifth day. After the second vaccination, and if any are still showing symptoms of the disease the sick ones should be again vaccinated, and so on until recovery is complete or well under way. Even then one should not expect one hundred per cent results, still that is not uncommon.

Besides vaccination good results in treating pulmonary edema depends greatly upon *quietude,* good care, warm dry quarters, clean pure water, and wholesome food. Serious results may follow vaccination of sick cattle if they are exposed to wet cold weather, poor housing, poor bedding, poor water and bad feed, and driven far or exercised.

Olathe, Kans. S. L. Stewart.

RABIES FOLLOWING BITE OF THE SKUNK

About 1878 or 1879, I collected the reports of fifty-two cases of skunk bite (*Mephitis mephitica*) with seven deaths resulting. It is well known that this animal commonly protects itself against danger by the free use of "perfumery," never attacks any one when it is well, and never bites if well except when cornered by an enemy. Skunks have rabies, and when they do they wander about attacking any man or animal in their path. At night if a rabid skunk finds a camper asleep it will bite any exposed part, usually the face. Of the fifty-two persons bitten by skunks seven were bitten while asleep, six about the face and one on the toe. All died of rabies. Of forty-five who were bitten while trying to kill trapped animals or in handling tame animals, not one had rabies or any sickness from the bites.

During the Modoc Indian War, soldiers sleeping out in the lava beds were frequently bitten on the face by rabid skunks and many of them died.

I also collected twenty-seven reports of dogs that had been bitten once or oftener by skunks when attacked. Usually the bites were about the nose. No bad results followed in any of these instances, except one. The skunk that bit the camper on the toe also bit his dog. The dog died of rabies.

In 1874 Rev. H. C. Hovey, in 1875 Dr. John E. Janeway, and later Dr. Elliott Coues reported many cases of rabies following skunk bites. If I remember correctly, one of these authorities believed rabies to be a disease common to skunks and that other animals contracted it from them.—Howard Jones, M.D., Circleville, Ohio, *Jour. A. M. A.*

Sterility in Dairy Cows

By S. L. Stewart, Olathe, Kansas

THE clinical manifestations of sterility depends almost entirely upon the cause of sterility. The fact that a cow does not become pregnant is always an indication that she is sterile, but in some cases the fault is with the bull. Therefore, one should not depend altogether upon clinical manifestations, but rather depend upon finding the actual cause of the sterility.

Causes of sterility are varied. Several classifications might be used, but for practical purposes I prefer to classify sterility into congenital, accidental, nutritional and infectious. These may be subdivided into many divisions, depending on location of the cause, tissues involved, the extent of the infection, etc. The first two divisions named are of least importance. Infection being of the greatest importance of all classes, regardless of classifications made.

Sterile heifers are usually congenitally so, due from lack of development of the genitalia or congenital malformation, and treatment usually is not indicated in any such cases as it rarely ever gives the desired results. However, there are exceptions. For example, examination of a two-year-old registered Holstein heifer revealed that the entire genital organs were decidedly undeveloped, and the owner was advised to market her but he insisted upon having her treated. She was treated at two different times. The treatment consisted of thoroughly massaging all the organs, dilating the vulva as it was abnormally small and, with a pair of scissors clipping down the hymen. After the second treatment the owner was again advised to send the heifer to slaughter but he retained her. Estrum came on soon after the second treatment and on being bred the heifer conceived and in due course delivered a live normal calf and is now about ready to give birth to her third calf.

Accidental sterility is more or less uncommon and usually of no importance except from a diagnostic or surgical purpose, except perhaps in some cases it may be of importance only as a diagnosis of sterility in order that the cow be sold to slaughter and stop the feed or pasture expense.

Sterility in dairy cows caused by nutritional deficiency (mineral, iodin and vitamines) is common. For every ton of milk produced, fourteen pounds of minerals are said to be taken from the cow. In the case of a heavy producer, this amount is probably more mineral than can be replaced by the ordinary dairy ration. It is a wellknown fact that dairymen do not, as a rule, feed a balanced ration or add to the feed a bodily required mineral; that is, mineral that also contains iodin and the vitamins A, B, E, and D, which are known to be of much value in feeding and breeding dairy cattle, especially the high producing cows.

In one herd of 140 milk cows that were fed a balanced ration, according to figures, when vitamineral was added to the ration, sterility decreased almost 100%. In the last eighteen months, I have treated only three cows for sterility (retained corpus luteum) where in previous years a number would be treated each year. Other herds have shown the same results where vitamineral was added to the daily ration over a long period of time.

In line with sterility caused by nutritional deficiency, it is believed by some that iodin is also of much value in treating sterility by adding it to the feed of dairy cows. It is believed that internal iodin will give desired results in most cases where iodin is indicated. In such cases success is almost impossible without iodin. Cows that have large spongy ovaries and cows with cystic ovaries, that have been treated without benefit, will yield to iodin treatment in many cases. The iodin should be given one week with the physiologic dose and retreated in ten days when the ovaries should again be

massaged, corpora lutea removed or the cysts broken down if necessary.

Internal iodin is indicated in sterile cows when upon examination no pathologic or physiologic changes can be detected. Usually, the cow is thin in flesh, the skin somewhat drawn, dry and covered with dandruff; the hair rough, long and harsh; frequently the skin will be void of hair in small patches. The cow in general shows a lack of thrift. To draw a line between the need of minerals and iodin is almost impossible. But iodin seems to give good results where other treatment fails.

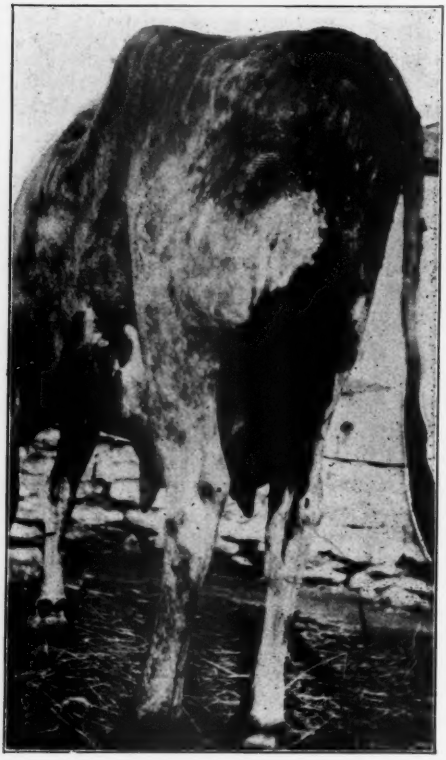


Fig. 1—Jersey with gangrene of the udder. The owner refused to permit an operation and the udder was painted with tincture of iodine.

It seems a little strange that so little is actually known about iodin treatment in sterility, yet it is known that iodin has a beneficial effect on the glandular system of all animals. It is claimed by some that an average sized dairy cow's body contains normally iodin to the equivalent of one drop of the tincture and if the amount falls below this required amount that glandular trouble of some character is probable. Iodin is eliminated by the mucous surface and mucous glands thus stimulating sluggish mucous membrane and mucous membrane glands to a greater activity. Thereby increasing digestion and stimulating assimilation of the normal amount of food, and minerals and vitamins the food contains. Iodin is also eliminated through all the glands of the body, particularly the salivary glands, perspiration and urine, thus stimulating all glands with which it comes in contact.

Fig. 2—Same cow one week later. The cow was operated upon at this time, the entire udder being removed. The operation was a complete success.

Some supply houses are now preparing internal iodin in powder form or put up in capsules, claiming results in treatment for sterility and increase of milk production in

cows milking below her normal amount as the iodin stimulates the milk producing cells of the parenchyma of the udder. Iodin is also recommended highly in the treatment of nymphomania in cows. Nymphomaniacs are usually sterile or decidedly hard to settle, and iodin is surely worth a trial.

Sterility caused by infection is so common and such a tremendously large problem, that when one thinks about its enormity he feels like standing beside the wailing wall at Jerusalem to let out his grief.

Some writers claim that the annual loss in the United States from sterility is $50,000,000. One writer places the annual loss at $100,000,000. But the term sterility has been used so loosely and made to apply to every condition that exists which prevents a cow from delivering a live calf, including infectious abortion in all its phases, that it seems impossible to get any authentic figures on the cost of sterility to the cattle industry, that does not include abortion and other genital disease. But unquestionably the cost of sterility caused by infection of various types is very great.

It would be impossible in an article such as this one to discuss all the features of sterility caused by infection, therefore, only some of the most common causes of sterility found in general practice will be mentioned (not discussed).

Ovarian troubles—infection of a low type of streptococcic or staphylococcic bacteria, causing inflammation of the ovaries, fibrous proliferation, tumefaction, cysts, etc., is common. Retained corpus luteum may be caused by infection but in my opinion that is doubtful. All mentioned conditions are frequently found more or less extensively in herds before, during or following an outbreak of infectious abortion. Mammitis also seems to be most prevalent during those periods, but it is a question if ovarian trouble and mammitis are even remotely related. However, any of these conditions may be found in cows in herds where no abortion exists.

Thirteen-month-old cow and her calf

Retained afterbirth or a small piece of the afterbirth and its decomposition within the uterus prepares the way for any of the above mentioned conditions as well as metritis, purulent metritis, salpingitis, cervicitis and vaginitis. Any of these affections in any stage of development usually is sufficient to prevent conception, but not always. A case is recalled of a Jersey cow that on autopsy revealed both ovaries about ten times as large as the normal ovary, both badly tubercular, and the cow well advanced in pregnancy. Another case is one of a registered Holstein cow, weighing about 1400 lbs. and a high producer in a herd where no abortion had occurred. Both ovaries were greatly enlarged, seemingly fibrous. She was treated by massaging the ovaries and hypodermic injections of pituitin once a week for nearly three months. She seemingly made no improvement and got no worse. The case was given up as hopeless and the owner advised to send her to slaughter, as soon as her milk production fell below the cost of her keep. Soon after treatment was discontinued she came in estrum, was bred and conceived. She will soon be fresh again with her second calf since treatment. Such cases are unusually rare, but it goes to show that prognosis can not always be rightly made on sterility and if the cow is valuable she should be given the benefit of every doubt.

If she is not valuable she should be sent to slaughter at once, before treatment for sterility is attempted.

The bull is an important factor and should not be forgotten when an investigation of sterility is being made. However, one should take the usual precaution and not condemn the bull when the cause of sterility is from mineral and vitamin and iodin deficiency or infection in the cow.

Traumatic Pericarditis in Cattle

By R. A. McINTOSH, Guelph, Ontario

THE migration of a sharp pointed foreign body from the reticulum to the pericardium and heart is a relatively common accident in cattle. In many instances such an occurrence is followed by the loss of the animal. In the early stages the definite diagnosis of a reticular puncture is attended with considerable doubt. In this stage operative procedure for the relief of the condition is of value, but once the condition has become well established an operation can scarcely be justified. The following reports of two cases are examples.

Clinic No. 129, *January* 18*th*, 1929.—This patient was a grade Shorthorn steer two and one-half years old. He had been purchased as a feeder in November and was allowed to range on pasturage for a month, after which he was taken in to be stable fed. Shortly after being stabled it was noticed that he was affected with some form of a digestive disturbance for which the owners had administered cathartics and subsequently digestive tonics. They felt that some improvement was gained although he did not thrive and continued to lose flesh. Finally swellings appeared on tissues around the sternum which ultimately extended as far forward as the intermandibular space and as far back as the sheath. At this time he was submitted to the College clinic for diagnosis.

The symptoms were characteristic. Extensive edema, a fixed thorax, extended head and neck, engorged jugular veins, abnormal heart sounds. Appetite poor and no rumination. Animal rapidly losing flesh. The owner was informed of the diagnosis and also given an unfavorable prognosis. However, an operation was requested.

The animal was given chloral hydrate in sufficient quantity to dull the senses but not to anaesthetize him, and placed on the operating table. The operation decided upon was to resect a portion of the eighth rib for the purpose of exploring the pericardial sac to find the foreign body and to evacuate it. The operative site at the ventral extremity of the rib was shaved and rendered aseptic and thoroughly infiltrated with a local anesthetic. A cutaneous incision about ten inches long was made over the eighth rib and then the rib exposed and dissected from its muscular, ligamentous and pleural attachment. It was sawed off eight inches above its sternal articulation and removed. Until this stage of the operation was reached there had not been any undesirable manifestations on the part of the patient. It was anticipated, however, that when the pleural cavity was opened considerable shock would be experienced and such was the case, for in a short time after the atmospheric air gained entrance to the thorax the animal expired. Precaution had been taken to make the initial pleural incision small so that the air only gained entrance slowly, but in spite of this he soon succumbed. The pericardial sac was opened, however, and found to be greatly distended with blood stained pus, and by digital exploration of the cavity a piece of wire about five or six inches in length was found.

It is quite possible that if the animal had not been so markedly debilitated he would have undergone the operation successfully, but the fact that this procedure is interfering with two vital functions, namely, that of respiration and the heart, greatly increases its hazard.

Clinic No. 303, *April* 18*th*, 1929.—In this instance the animal affected was a Holstein cow which had been milking for some time and was still producing about 40 pounds a day. On April 5th she became indisposed with some obscure digestive ailment, for which the owner

gave a saline cathartic followed by digestive tonics. Again, as in the preceding case, it was felt that some improvement had occurred, but it was noticed that she remained in the standing position and when recumbent would grunt and moan as if in pain. The milk secretion had dropped to fifteen pounds per day. On the 18th of April she rather suddenly became much worse, refused all food and would not ruminate. The owner stated that rumination was difficult and the regurgitation of food was attended with pain ever since she had first taken sick. When examined it was noticed that she held the thorax fixed, was reluctant in her movements and held the head somewhat extended. The pulse was much too frequent and weak. Temperature 102° F.

A diagnosis of reticular puncture with reticulitis and possible pericardial involvement was made. In the way of treatment an exploratory rumenotomy was suggested to which the owner was agreeable, but before doing this another means of relieving the condition was tried which in this instance proved successful. The cow was taken out in front of the barn, cast and rolled on her back. While in this position the operator, by means of his foot, forcibly shoved back on the abdominal viscera at the posterior extremity of xyphoid cartilage on the left side. This kneading manipulation was performed several times and then the animal was allowed to get up. The owner was instructed to build her stall up in front so that when she was either lying or standing the body would slope to the rear. Much improvement was noticed the following morning, and in three days she was back to her forty pounds of milk production again.

The intention of such manipulation is to cause the return of the foreign body to the reticulum, and the writer believes that such procedure is worthy of a trial in the early stages of those cases in which it is felt that a reticular puncture has taken place. In this instance it was attended with good results. The results also tend to substantiate the diagnosis, for it is extremely improbable that any benefit would be derived by that procedure in animals affected with some other form of digestive disturbance. Even if it does not cause the return of the foreign body it may alter the direction of it toward less vital structures than the viscera of the thorax.—Report of the Ontario Veterinary College for 1929.

COAT OF DOG NOT RENEWED

Three years ago in May we clipped a dog of mixed breeding, supposedly a Pomeranian and Spitz or Chow, black in color. By the end of the summer the coat had grown out nicely and was in every respect absolutely normal.

Dr. Ruggles' Case

The dog was clipped the following spring, the coat growing out to its normal length again. Last spring (1929) the dog was clipped lion style as had been done before but to date there has been, with the exception of two small spots, not a sign of any growth of the hair clipped off. The exceptions are two areas about the size of a quarter that had been scratched, because of an insect bite and on these spots the hair has grown to the normal length as is indicated by an arrow on the picture.

The dog is seven years old and in good physical condition, the skin pliable

and soft, with no loss of hair except the region under the neck.

The enamel of the teeth is very poor but there is no accumulation of tartar and no pyorrhea. The animal is a cryptorchid. It has been given outdoor exercise, a proper diet and in general, well taken care of in every respect.

Why should this hair stay in a dormant state and what can be done as to treatment aside from systemic tonics and the use of ultra-violet rays.

Portland, Oreg. Wm. E. Ruggles,
Fred C. Schmidt.

FATAL HEMORRHAGE OF RENAL ARTERY

I was called by a client who said he had a sick mare. When I arrived I found a valuable big black brood mare twelve years old, weighing about seventeen hundred pounds, in good flesh and of sleek coat.

This mare stood, breathing somewhat uneasily, with a rapid pulse and a temperature of 107° F. She was sweating a little, acted droopy, but was quiet and manifested no signs of acute pain. A bowel passage was covered with a white slimy exudate, such as I had found many times in horses which had a toxic disturbance of the intestines.

I told the owner the mare was very sick and that unless she improved promptly under proper medication, she would not live long, and that I could not for the present, tell just what was causing the very unusual symptoms, but felt that there was some severe intoxication.

I began to treat through elimination, a physic ball, nux vomica, aromatic spirits of ammonia with several injections of arecolin. In about two hours the mare seemed much better, her temperature dropped from 107° F. to 104° F. I left some medicine to be given and left saying I had better see the mare again in the morning.

The next morning the client called, saying the mare seemed much improved and that he did not believe it to be necessary for me to see her. But two days later he called again, saying the mare was lame and was not doing well. I found her lame in the right stifle. Her temperature was about 102° F. and pulse 50. She was gaunt and somewhat stiff. The lameness would shift into the other limbs. I saw this mare several times in the following weeks and had plenty of time to study the case. My treatment was all in vain. She ate very little, lost flesh rapidly and the lameness continually shifted from one leg to another. One morning, the client called up and said the mare was colicy. I told him I could do no more; that she was going to die, which she did within twenty minutes, and an autopsy was held.

I removed the whole left side carefully so as not to disturb any internal organs. About three gallons of wine colored fluid was observed in the abdominal cavity. The left kidney was completely surrounded by a clot of blood of a size sufficient to fill a three gallon pail. The clot was old for it was black as tar, and was enclosed within the fat and fibrous tissue surrounding the kidney. The kidney itself looked normal.

The surprise to me is that this mare at no time showed the symptoms one would expect from such a large loss of blood.

The value in posting the above cases is in satisfying oneself and the owner why sometimes drugs fail us. One also adds to his store of experience by following cases to the final conclusion.

It is my conclusion that the hemorrhage occurred at the beginning of the disease as revealed by the conditions of the clot. The most mystifying thing to me is how the mare could live for four weeks in this condition and why she did not die suddenly.

However, I believe the bleeding took place over a period of a number of hours and without breaking the fatty like capsule surrounding the kidney fat. The mare was in very good condition to begin with and so could stand a great deal.

TREATMENT FOR IMPACTION IN CATTLE

I have enjoyed greatly reading the different articles by Doctor Baker. He is my favorite veterinary author.

I especially like his items on treatment, for they are always practical. Some time ago, I noted a formula he gave on the treatment of impaction in the cow, but I have misplaced it. Will you give me his treatment, please?—J. R. T., Illinois.

Reply: Into a ten quart granite pail, put two gallons of boiling water and add five pounds of sodium hyposulphite and 2½ pounds of sodium chlorid. Mix well. This is stock solution No. 1.

Into a one gallon bottle, pour a quart of the above solution while still warm, and add one pint of Karo corn syrup, two ounces fluid extract of nux vomica, four ounces of aromatic fluid extract of cascara, one table spoonful of soluble saccharine, shake well and add enough of stock solution No. 1 to make one gallon, that is, to fill the bottle, and you have a vehicle you can use for a variety of cases. This is stock solution No. 2.

For impaction, take two rumen tablets (each containing 15 grains of barium chlorid, 15 grains of tartar emetic, one-quarter grain of strychnin sulphate and one grain of extract of lobelia). Crush two of these tablets and put them in a large beer bottle, (a long neck ginger ale bottle will do in dry territory where they drink hard cider from a barrel), and add 11 ounces of stock solution No. 2. Give a bottle of this once or twice a day as needed. In big Holstein cows, give two bottles at a dose.

For bloat, take two rumen tablets, two ounces of aromatic spirits of ammonia, two ounces of turpentine, one dram creolin or one ounce of cajeputol; fill up your beer bottle, or in a pinch your ginger ale bottle, with stock solution No. 2, and you will be set for the average cow when she is as full of gas as a political speaker.

For impaction in horses, use a bottle of stock solution No. 2, with the indicated amount of linseed oil or mineral oil.

In bad diarrheas, put a dose of mucoseptone in the bottle and fill with stock solution No. 2.

Start cows off after they get up from an attack of milk fever with a bottle of stock solution No. 2. Start your obstetrical operations with a bottle of it.

It is sweet enough so that animals do not fight its administration, and its action on the milk secretion is beneficial. It does not taint the milk. Just what action sodium hyposulphite has on the mammary tract, the writer does not know, but it is beneficial.—E. T. B.

TEXAS HAS A COUNTY FREE FROM TUBERCULOSIS OF CATTLE

Texas has entered the list of States having "modified accredited areas," areas that are practically free from bovine tuberculosis. On May 1, Dallas County was officially recognized as being in that status. Eradication work was under State and Federal authority with the county officials and live stock owners cooperating. The application of the tuberculin test to 43,283 cattle in the county revealed only 114 reactors, which were removed from the herds. This degree of infection was materially less than the permissible 0.5% of the total cattle population, which entitles a county to accreditation.

TUMOR IN NOSTRIL OF AN OX

This animal had a tumor about the size of a hen's egg in the right nostril. It presented a red disgusting looking appearance.

As the animal was refractory, I had to cast it. Rueff's method was adopted for casting in order to examine it.

The tumor had a well defined neck, and with one twist it came away quite easily. No further treatment was necessary. No microscopic examination of the tumor was made, but it had a fibro-fatty appearance.

St. Kitts, B. W. I. E. F. Jardine.

REPORT OF A CASE OF PARTURIENT PARESIS

[From VETERINARY MEDICINE Twenty Years Ago (July, 1910)]

This cow, a grade Jersey and Shorthorn, seven years old, weighing about 1,100 pounds, very fat and a heavy milker, was owned by an Italian rancher living 25 miles from town. Not being familiar with the use of the modern telephone and having none near, the man sent his son in, on a saddle horse, to summon medical aid. Consequently the patient had been down twelve hours when I reached the place. She in the meanwhile had been gradually growing worse and the owner had decided she was practically dead and that treatment would be of no avail. Being of a very parsimonious disposition, he had been conjuring up schemes whereby to save the payment for my visit, for being without telephone connections, he had been unable to stop my coming. Before I had seen the patient and even before I got into the yard, he, in a mixture of English and Dago, offered me the cow in payment for my visit. I jokingly told him that I wanted to see the cow before I closed the deal, but he kept insisting that I "taka de cow." I finally got him to show me the animal and saw at a glance that she was affected with parturient paresis. Having been down for such a great length of time she was near death and apparently had only a few grunts left. I attempted to explain as best I could to the man, the condition of affairs, and told him that she could undoubtedly be cured. The more I tried to explain, the more often and more emphatic the owner said: "You taka de cow for you pay." Finally, getting disgusted with the man, I closed the deal, having decided in the meantime that this was certainly an excellent opportunity for carrying out an experiment I had been planning and had been at a loss as to how I could procure the necessary patient at a reasonable outlay.

My sole object in the following procedure was to determine by observation the actual condition of the circulatory apparatus in the brain of a "milk fever" patient. I was surprised to find, however, that during the progress of the experiment other and very interesting phenomena manifested themselves.

Fearing that the animal might die of the trouble before my operation was completed, I partially filled the udder to improve her condition. Then with a scalpel and a bone saw, I proceeded to remove the top of the cranium so as to expose the brain. It is interesting to note that during this operation the hemorrhage was practically nil and that the sensory paralysis in the region was so complete that no evidence of pain was manifested. It was just as if she had been anesthetized. I was fairly successful in removing the cranial cap without injury to the brain and when completed I had exposed an area of the surface of the cerebrum about 2½ inches in diameter. I can best explain the appearance of the exposed brain by simply saying that it was truly anemic, being as pale as the gray matter can get. There was, however, enough blood remaining in the veins to give a bluish color to the venous tracts.

It occurred to me at this point to inflate the udder fully and watch the effects on the circulation of the head and brain. This I did, with the following marvelous and exceedingly interesting results. About 50 minutes after inflation of the udder there began a marvelous change in the arteries. The larger arteries began to fill and in these there became apparent a pulse wave, weak at first but becoming stronger later. As these arteries became filled the blood was forced out into the smaller branches until the normal circulation was resumed. The effect of each heart beat during this filling process could readily be seen. The blood in the arteries being forced ahead a certain distance by each contraction of the heart. Sixteen minutes elapsed from the time the first change in the brain vessels was noticed until the circulation

had apparently reached its maximum. There was a noticeable increase in the size of the brain during this time. Also hemorrhage from the cut surfaces appeared as the blood pressure increased and became profuse as time elapsed.

The effect of the re-establishment of the circulation of the brain showed itself in various ways during the next 15 minutes. The recovery in this case was the same as seen in any similar case. Reflexus returned, consciousness also appeared and the sensory and motor paralysis began to disappear. In 10 minutes after I had decided that maximum circulation had been reached in the brain, with some assistance the cow rolled up on her sternum. Hemorrhage at this time was becoming very profuse, and not wishing to torture the cow, I killed her by an incision into the exposed brain, having witnessed as much and even more than I had expected when I began the operation.

I might add that the Italian was greatly interested in the treatment his cow was receiving and more than surprised to see her roll up on her sternum. He even became so excited as to want me to fix the top of her head on so he could have her back.

A. J. Dammon.

FOWL LICE NOT KILLED BY DRUGS IN DRINKING WATER

Drugs added to their drinking water will not remove lice from poultry. Officials of the Food and Drug Administration again proved this fact to the satisfaction of a jury in a case against the Reliance Manufacturing Company at El Paso, Texas. The jury affirmed the contentions of the Government. The court imposed a fine and obtained a statement from the owner of the company that the manufacture of Reliance Lice and Mite Killer would be discontinued.

This is only one of a series of actions against this type of fraudulent product in which the courts have upheld the regulatory powers of the U. S. Department of Agriculture. A few years ago many such preparations appeared on the market and were tested thoroughly by W. S. Abbott, in charge of the entomological testing unit of the Food and Drug Administration, Dr. F. C. Bishopp of the Bureau of Entomology, and their coworkers. All of these preparations were found to be of no value against lice and the market has been practically cleared of them.

JAUNDICE IN THE DOG

My experience in treating it for thirty years is that jaundice in the dog is an extremely serious and fatal condition. It rarely occurs as a simple catarrhal jaundice as it so frequently does in man. In dogs, jaundice usually seems to be due to some serious chronic condition which by the time the jaundice manifests itself is not amenable to treatment.

It is treated by starting out with repeated purgative doses of calomel with an equal amount of bicarbonate of soda. The purgative dose of calomel for the dog is from three to ten grains, according to the size and age of the animal; this is followed up by some with mildly purgative or merely laxative doses of salines in conjunction with carbonate of potash, which has the property of increasing the liquefaction of bile.

After this treatment is continued for ten to fourteen days and the patient has not shown marked improvement under it, give the following:

℞ Ammon. chlor. ..... ʒ yss
Syr. as. citrici..... ʒ vj
Aquae q. s. ad. ..... ℥ iij

M. Sig.—One dram in water, t.i.d. after meals.

The rationality of the above prescription lies in the fact that ammonium chlorid has a stimulating action on all mucous membrane and its value in jaundice would lie in its stimulating the mucous tissue of the liver, gall bladder, gall ducts and thus promoting liquefaction and the outflow of the bile instead of having it dammed up and being absorbed.

Mycotic Pneumonia in Cattle

By C. C. PALMER, Newark, Delaware

A FORM of pneumonia caused by the inhalation of great amount of molds occurs frequently in poultry and is seen occasionally in mammals. In poultry the disease is frequently referred to as aspergillosis, deriving the name from the genus name of the mold, aspergillus. Buchanan[1] reports, Mayer and Emmet, in 1815, were probably the first to note the presence of aspergillus in the lungs of a bird. Since that time, the organism has been reported many times. Among animals, the disease has been reported occurring in horses, cattle, sheep, swine and dogs. It has been observed in man. In most cases no careful species determination was made, but the probabilities are greatly in favor of *Aspergillus fumigatus* being the species responsible. In animals, the disease is known as mycotic pneumonia, also as pneumomycosis.

There is sufficient experimental evidence, according to Buchanan, to justify the conclusion that *A. fumigatus* may produce a primary and fatal infection in many animals. It produces death within a few hours or days when injected intravenously or intrathoracically into the chicken. The pigeon is particularly susceptible to injections. Rabbits and guinea-pigs likewise succumb, usually from a generalized infection. Natural infection takes place through inhalation of the organism when forage containing the mold in great numbers is employed for roughage or for bedding purposes. In this way a primary infection of the respiratory organs occurs, but metastatic infection of other organs is not infrequent. When lung tissue is involved the small and large air tubes become occluded by the green fructifications of the fungus, and there is more or less necrosis of tissue immediately surrounding the organisms.

[1] Buchanan, R. E., Veterinary Bacteriology. W. B. Saunders Co., 1916, P. 443.

Hutyra and Marek[2] state—"the symptoms and course of the disease are frequently similar to catarrhal pneumonia, and the clinical picture is therefore initiated by symptoms of bronchial catarrh." In typical outbreaks in cattle the history and symptoms suffice for making a positive diagnosis. In isolated cases in which the clinical picture is not complete a diagnosis may be made, usually, by the character of the lesions and the appearance of the green mold in the air tubes and alveoli. A microscopic examination of the scrapings of the infected mucous membrane should reveal the spores and characteristic condiophores without difficulty.

A Case of Mycotic Pneumonia in a Cow

The following case report affords an excellent example of what may occur when cattle are fed extremely moldy roughage:

On May 21st, 1928, a call was received from a dairyman, stating one of his cows was suffering from choke. Examination of the patient revealed the owner's diagnosis was incorrect, the animal was suffering from pneumonia. The history revealed the cow had been sick for about one week. She had a severe cough, and this was true of all members of the milking herd of sixteen cows. During the past few days the patient had refused feed and there existed a marked decrease in milk secretion. It was this last named symptom, more than any other, which alarmed the owner. When questioned concerning the symptoms shown by other members of the herd, the owner replied —"they are all milking and eating well, except the sick cow, but all of them have a cough—they cough so much and so hard during milking they almost jerk the milk pail out from under them."

[2] Hutyra, F., Marek, J.: Special Pathology and Therapeutics of the Diseases of Domestic Animals. Alexander Egar, 1917, Vol. 2, P. 158.

The patient, although refusing feed and showing marked pulmonary disturbance, was not in great distress. The temperature was 103° F. The respirations were accelerated and abdominal in type (pumping). Auscultation with the stethoscope revealed considerable exudate present in the left anterior thoracic region. It was rather difficult, at first, to determine whether the exudate was present in the lung tissue or in the pericardial sac. The heart sounds were barely distinguishable amid the gurgling sounds emanating from the exudate. Occasionally there would occur a brief pause in the respirations, and during such intervals the heart sounds were clear and distinct and the gurgling sounds were suspended. When breathing was reestablished the gurgling sounds were again established. The respiratory sounds emanating from the right side of the thorax were apparently normal. Spasms of coughing occurred several times during the course of the examination.

Observations of other members of the herd revealed the truth of the owner's statements as far as the cough was concerned. Their appetites were normal, apparently, and there was no evidence of lung involvement. The cough, of course, indicated bronchitis.

Investigation of the management practices revealed the herd was stabled at night, and kept in the "pound" (a down-east expression) with a shed for shelter during the day. The herd was not on pasture. Examination of the feed revealed the cows were receiving as a concentrate feed, a commercial dairy ration, mixed with home grown concentrates, yielding a protein content of approximately eighteen per cent, which is about correct for an ordinary working herd. This feed appeared to be of good quality. The roughage consisted of soybean hay which contained large quantities of mold. The owner was aware of the moldy soybean hay, but as he had no other hay he thought he could feed this until the cattle were placed on grass. Soybean hay is a splendid roughage for dairy cattle, when harvested properly, but unless it is properly handled it is very apt to contain much mold, in which condition it is unfit and dangerous for feeding.

The discovery of the moldy soybean hay and the symptoms exhibited by the animals was sufficient for establishing a diagnosis of mycotic pneumonia in the sick cow, and mycotic bronchitis in other members of the herd.

The pneumonia patient was removed from the herd and placed in a box stall with an open yard adjacent. She received as feed, grass, and as much concentrate feed as she would eat. During the daytime, provided weather conditions were suitable, she was kept in the yard, and at night placed in the box stall. Medical treatment consisted of stimulants and expectorants. The preparations selected were fluid extract of nux vomica and mucoseptone.

The remainder of the herd received no special treatment, except discontinuance of the moldy soybean hay and turning the cattle on pasture for a few hours each day.

The prognosis is usually unfavorable in mycotic pneumonia, and such a prognosis was made in this case. Removal of the cause was followed by rapid recovery. On May 31st, the owner reported the herd greatly improved and the pneumonia cow apparently fully recovered. This herd was visited again in July, at which time there was no evidence of a mycotic disturbance.

Quail can be infected with the *Bact. tularense*. R. G. Green of the University of Minnesota has found in nature a dead quail infected with the *Bact. tularense* and that may have died of tularemia. There is some evidence that this disease is the etiological factor in epiornitics that periodically decimate native species of game birds in Western Montana. The rabbit tick, *Hemaphysalis leporis-palustris,* occurs widely as a common parasite of several species of game birds and other ground frequenting birds. This flea is believed to be an important agent of tularemia transmission in nature.

BACTERIA AND MILK*

The investment in dairy equipment in this country amounts to $11,000,000,000. We could reduce the investment very much, perhaps to one or two billion dollars if we could eliminate bacteria.

There are two ways to control bacteria. One is to keep them out. The other is to restrain or subdue those that get into the milk. Under commercial conditions, it is impossible to keep them out. In a certain sense they may be looked upon as normal constituents of milk.

The aim then is to produce milk with as few bacteria as possible consistent with the price of milk. Bacteria get into milk from: 1. Interior of the cow's udder. This source cannot be controlled and if the cow is healthy we do nothing about it. 2. Outside the cow. Bacteria from this source are to a degree under control. Very few get into the milk from air in the barn. A great many get in from the surface of the cow. Dust from the surface of the cow contains 11 billion germs per gram. It is easy to see that a single gram of this dirt would cause a high bacterial count in a ten gallon can.

The utensils used is the source of many bacteria in milk. An examination of some empty cans sterilized (?) and sent back to the farm showed 36 million organisms per can. The method of washing cans at commercial plants is an abomination. It were far better to rinse the can in clean water and leave it open, inverted on a rack to permit the circulation of air into it.

Bacteria that cause ropy milk are a frequent source of trouble and almost never is the dairyman to blame. This organism lives in water and the contamination reaches the dairy farm usually from water in which the cans are washed. It is carried from one batch of milk to the other. Sterilize the cans.

The older rubber tubes of milking machines are very difficult to sterilize on account of cracks on the inner walls of the tubes. It is better to discard the rubber tubes when they get old rather than to try to use them as long as possible.

The way to increase the consumption of milk is to produce better milk. Good milk will advertise itself. The problem of quality milk is 90% a problem of bacteria control.

* Notes from an address on "Bacteriological Problems in Milk," by M. J. Prucha, University of Illinois; Eleventh Annual Conference, University of Illinois, Urbana, Feb. 10-12, 1930.

GENERAL ANESTHESIA IN A DOG WITH INTRAVENOUS INJECTIONS OF CHLORAL-HYDRATE

Marz is of the opinion that of the various veins the vena saphena on the lateral side of the lower thigh slightly above the knee joint offers the safest and most convenient place for intravenous injections. On the lateral side of the lower thigh on the distal end of the tibia runs a strong connecting branch from the plantar to the dorsal branch of the saphenic vein. The anastomosing branch known as vena saphena is best suited for the injections. The vein lies directly on the bone and upon compression becomes very prominent.

Technic of the operation: The animal is laid on the side, a rubber ligature is applied on the upper hind leg above the knee joints in order to expand the vein. Washing and shaving of the place of injection with alcohol. Slow and uniform injections of the chloral-hydrate solution which has been warmed to body heat, with the aid of a sterilized syringe in the direction of the blood stream. The diameter of the needles should be chosen according to the size of the vein and the syringes should be of 5 to 10cc capacity. The chloral-hydrate is used in 10% solution and is sterilized by boiling. 0.2—0.25 chloral-hydrate is injected per kilo bodyweight which produces a deep anesthesia.

Usually five minutes after the beginning of the injections the first distinct indications of sleep appear. In another five minutes a deep anesthesia follows. The animals remain asleep for one-half hour following an

anesthesia which lasts from 25 to 30 minutes. The awakening is gradual. In about two hours after the injection all visible manifestations of the anesthesia have usually disappeared. Undesirable after effects of any kind were not observed following the chloral-hydrate anesthesia. The injection induces a rise in temperature from 0.8—2.3 deg. C., which reaches the height towards the termination of the anesthesia. The frequency of the pulse is increased up to 140 per minute. The respiration is hardly influenced. Possible complications are: thrombosis, phlebitis, periphlebitis and abscesses, which, however, can be absolutely prevented if the proper technic is employed.

(Tierarzt, Rund., 1924, No. 7).

IS THE COCKLEBUR POISONOUS?

A Marshalltown, Iowa, correspondent, writes:

"Dr. R. M. Allen referred me to you for some information that I need. I have 15 acres of clover that I seeded one year ago and will be my hay crop this year. Last fall cockleburs came up and are about a foot high with burs on the stems. Will they hurt my cows?"

The mature cocklebur plant is not poisonous and this is strange because in the early cotyledonary stage the plant is poisonous especially to hogs.

The cotyledons contain a poisonous glucoside known as xanthostrumarin. On heating succinia acid is given off. It is said to be an active styptic. I went into the poisonous nature of cocklebur seedlings quite fully in the special swine practice number of VETERINARY MEDICINE, (October, 1928), when I published a very interesting note from Dr. K. W. Stouder, who noted the progressive distribution of the disease which coincided with the germination of the seed.

The burs act injuriously in a mechanical way, when eaten in quantity, which is seldom.

Ames, Iowa. L. H. Pammel.

BOOK REVIEW

Practical Veterinary Pharmacology, Materia Medica and Therapeutics, by Howard Jay Milks, D.V.M., Professor of Therapeutics and Director of the Small Animal Clinic, New York State Veterinary College at Cornell University, Ithaca, N. Y.; with a chapter on Biological Therapeutics by Adolph Eichhorn, D.V.S., Director of Veterinary Department, Lederle Laboratories, New York. Published by Alexander Eger, 9 S. Clinton Street, Chicago, Illinois. 539 pages, 31 illustrations, cloth bound, price $6.00, net.

The publication of a new veterinary book and this book, being almost entirely rewritten, is in a measure a new one, is something of an event these times, when not one veterinary text is published to a dozen that were published fifteen or more years ago. While veterinary periodicals and veterinary short courses and veterinary meetings are offering the veterinarians many opportunities for keeping up to date, the need for carefully prepared texts and reference works has not passed, and the author and the publisher of this work deserve no little credit for bringing out this work.

Not a great deal need be said in review. The first edition of the work fixed the place of the author, and nothing less than the best on the subject can be expected from him; and, the name of the publisher, the oldest and best known in the veterinary field, is sufficient guarantee for the mechanical excellence of the work.

Veterinary Pharmocology and Therapeutics follows the usual style of such works: discussing the definitions of terms used in materia medica, the sources of drugs, weights and measures, pharmacy, dispensing and prescription writing, and the various preparations of veterinary materia medica.

The work is brought right down to date and includes, for the first time, a discussion of many drugs that have come into popular use within very recent years, including ephedrine, butyn, apothesine,

tutocain, barbital, sodium, neonal, ipral, luminal, cinchophen, chloramine, dichloramine, ethylene, mercurochrome 220 soluble, metaphen, mercurophen, flumerin, gentian violet, acriflavin, proflavin, novasural, caprokol, euresol, insulin, carbon tetrachlorid, tetrachlorethylene, parathyroid hormone, calcium gluconate, oil of thuja, yeast, etc.

To meet the demands of present day veterinary practice, an entire section is included on biological therapeutics. This section was written by Dr. A. Eichhorn, and is a revision and elaboration of a similar section in Winslow's 8th edition of Veterinary Materia Medica and Therapeutics. Naturally it includes many changes and constitutes a valuable addition to the Pharmacology.

Monograph on Undulant Fever and Contagious Abortion, by L. C. Bulmer, B.S., N.D.D. (Eng.), Director Bureau of Dairy Inspection, Jefferson County Board of Health, Alabama. Published by The Technical Service Bureau, Birmingham, Alabama. 66 pages, 6 illustrations, art paper binding, price $1.60.

This is an attempt by the author to give a bird's eye view of the problem of undulant fever by presenting in a summary form, the facts derived from a search of authoritive literature on the subject.

An interesting chronological list of important events in the history of these diseases is given, going back to 400 B. C., when Hippocrates described a protracted fever which is now believed to have been undulant fever. Following Hippocrates, literature apparently contains no record of this disease for more than 1900 years until in 1567 Moscall discussed the infectiousness of abortion in cattle.

In the veterinary writings of the first quarter of the eighteenth century, there are numerous references to abortion in animals, showing that at that time its infectiousness was thoroughly appreciated, and the product of the abortion, particularly the fetal membranes were regarded as the principal means of dissemination.

Most of the research that has shed light on the nature of contagious abortion and undulant fever has been conducted by veterinarians, and in the record of important discoveries, we find repeatedly the names of Mohler, Schroeder, Traum, Carpenter, Meyer, Bang, M'Fadyean, Stockman, Cotton, Fitch and others.

The symptoms and characteristics of the disease, and the clinical and seriological diagnosis of it are discussed in considerable detail.

In the discussion of veterinary angles of the disease, some inaccuracies have crept into the text, as for example: organisms of the Brucella group are responsible for contagious abortion in *mules;* also cows that abort may continue to excrete Brucella abortus in their milk for several *days;* animals vaccinated with live organisms frequently become chronic carriers and excrete the organisms in their milk; that the production of milk is retarded by infection when abortion does not occur, is uncertain; that authorities in America have discontinued employing the live-organism-vaccination as a means of control.

The author believes that undulant fever is far more prevalent in the United States than the reported cases would indicate; this being due to the unfamiliarity of physicians with symptoms of the diseases, resulting in their failure to recognize a majority of the cases. He also regards milk as being a very important, one may assume from the text although he does not actually say so, the most important source of infection in man. But slight mention is made of the importance of contact with the infected animal as a source of infection in man.

The occurrence of *Br. abortus* in horses, sheep, swine, dogs, and poultry is briefly discussed and a list is given of laboratory workers who have been infected by contact while experimenting with the organism.

Reviews and Abstracts

Castrating and Docking Lambs

The largest part of the returns from farm flocks of sheep is derived from the sale of lambs. Range lambs practically always reach the market castrated, docked and graded, and bring from $1.00 to $5.00 per hundred pounds more than undocked bucky lambs of the type commonly reaching market from farm flocks.

A recent bulletin[1] lists the advantages of docking and castrating, and gives directions for performing the operations. It is recommended that the operations of docking and castrating be performed at the same time, on ram lambs and at the age of seven to ten days. A chisel heated to a cherry red or docking irons similarly heated, are recommended for the docking, and for castration, it is recommended that one-third of the scrotum be cut off and the testicle removed by pulling out the cord.

When the lambs become older the cords must be cut and the hemorrhage is greater from both operations and the operations are more serious.

Rearing Dairy Heifers

In view of the market for heifers and cows in California, Haring[2] recommends that heifer calves of good milking strains be reared not only from tuberculosis free and abortion free herds, but from infected animals; and gives explicit directions for rearing healthy heifers from diseased cows.

Reliance is placed upon intelligent separation of the heifers from diseased animals and the pasteurization of the milk, fed to the heifers, at a temperature of 160 to 170° F. for a period of twenty minutes.

It is stated that no permanent infection in the heifers will ensue from association with cows affected with contagious abortion if they be separated at weaning time, but the greatest care must be exercised to protect the calves from tuberculosis infection after they are 48 hours old, and that in addition to this, calves raised on farms where there is any bovine tuberculosis or calves that are fed the mixed milk of a number of cows, should be tuberculin tested every six months as an additional precaution. Reacting calves must of course be removed from the herd promptly.

Two New Species of Nodular Worms of Swine

Formerly it was thought that but a single species of nodular worm, *Esophagostomum dentatum,* inhabited the large intestine of swine, but in 1925 Goodey described a new species of the Esophagostoma that he had collected in New Guinea from the intestine of a pig, and named it *Esophagostomum longicaudum.*

Schwartz,[3] shortly after reported identifying this species of nodular worm in specimens in the helminthological collections of the Bureau of Animal Industry, finding it in specimens from the United States, Philippine Islands, French Indo-China, and the Fiji Islands.

More recently, the same author has discovered two additional species of Esophagostomum in a collection of nodular worms from Moultrie, Georgia. He proposes the names *E. brevicaudum* and *E. georgianum.*

The Physiology of Milk Fever[4]

The normal process of lactation alone appears to deplete the blood of 25.5 per cent of its inorganic phosphates as compared with the dry cow. There is also a depletion of the acid soluble phosphorus to the extent of 14.5 per cent. The calcium content of the blood is not affected

[1] Bedell, G. H., and E. W. Baker; Castrating and Docking Lambs; U. S. Dept. of Agriculture Farmers' Bulletin No. 1134.

[2] Haring, C. M.; Rearing Dairy Heifers Free from Tuberculosis and Abortion Disease; California Agricul tural Extension Service; Circular No. 33; October, 1929.

[3] Schwartz, Benjamin, and Joseph E. Alicata; Two New Species of Nodular Worms (Oesophagostomum) Parasitic in the Intestine of Domestic Swine; Reprinted from *Journal of Agricultural Research,* Vol. 40, No. 6.

[4] Fish, Pierre, A.; The Physiology of Milk Fever III, the Blood Phosphates and Calcium; *Cornell Veterinarian,* Vol. XIX, No. 2.

by lactation except temporarily at its onset; the amount was found to be the same in both the lactating and the dry cows.

With the onset of milk fever there is a radical change in the picture. There is a further depletion of the inorganic phosphates; a reduction of 51 per cent from the normal of the milk cows or of 63.5 per cent if compared with that of the dry cows. A similar depletion is observed with the acid soluble phosphorus but less pronounced; there is a depletion of 18.5 per cent as compared with the normal for milk cows, or 30 per cent if compared with that of the dry animals. These pronounced changes are accompanied by a marked depletion of the calcium content to the extent of 66.5 per cent.

The accepted remedy for milk fever is inflation of the udder. The effect is relatively rapid, the animal recovering from its collapse or coma, and standing on its feet again, often within a period of 6-8 hours.

The phosphates and calcium remain at a low point or diminish for twenty minutes or more after inflation and the most rapid rate of return toward normal has occurred before, or by, the 6-8 hour period. The most striking gain is shown by the inorganic phosphates which have more than doubled in quantity and even exceeded the normal average, although they decline gradually in the later periods. The acid soluble phosphorus fluctuates in the later periods but remains above normal. The calcium gains considerably but at the 6-8 hour period is still far from the normal.

Aside from its effect on the phosphates and calcium of the blood, the inflation of the udder undoubtedly contributes other factors which assist materially in the recovery of the patient.

The existence of a hypocalcemia having been demonstrated in the blood of milk fever patients; it might, as a matter of course, seem natural to correlate the condition with some disturbance of the parathyroid function. Up to the time of our experiments we have been unable to find any record of research on the blood phosphates in cows suffering from milk fever. Each of these 18 cases examined in our laboratory showed a considerable and consistent reduction of the phosphates as well as calcium prior to the inflation of the udder; the average reduction being about 50 per cent as compared with the normal for the cow in milk. These results do not therefore harmonize with those obtained in parathyroidectomy so far as the phosphate factor is concerned and introduces a difficulty in correlating the phenomena associated with milk fever with a disturbed parathyroid function. In milk fever there is increased elimination of both phosphates and calcium. The sudden onset of the disease and the dramatic recovery, all within a few hours, cause doubt as to the existence of any extensive pathological change in the parathyroid glands. Pathological changes as a rule, require more time for their production and return to normal.

It is not impossible that the physiological catastrophe occurring in milk fever is more complicated than can be accounted for by the simple explanation that it may be due to an excessive drainage of the phosphates and calcium from the body. Such an excessive drainage may profoundly affect the functional activity of the soft tissues. There is a hyperglycemia to be accounted for. This may be due to an increased conversion of the liver glycogen into sugar, or it may be due to a condition in the tissues, especially the muscles, whereby they are unable to utilize the sugar brought to them by the blood. Muscular tetany, evidenced in many of the patients, indicates that the muscles are very much involved.

At this stage of the investigation only theoretical observations can be offered. In the normal process of lactation the blood calcium suffers only a temporary diminution and soon returns to normal; the phosphates suffer a greater diminution and apparently remain diminished

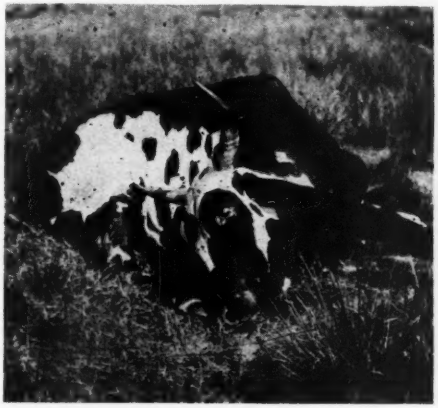
while milk production goes on. Both substances are important constituents of milk and are represented there in much greater amount than in the blood and both are intimately associated with casein. With the onset of lactation in milk fever in heavy milkers, the drainage from the blood and body tissues may be so great as to disorganize metabolism. It is probable that too great a depletion of the phosphates alone or calcium alone would produce serious consequences. With a simultaneous depletion of both of these important constituents the result is still more serious.

The beneficial effect of udder inflation is evidenced from data already given showing that the depleting process is checked and, with a return of the phosphates and calcium toward normal, improvement results. Our data indicate that the phosphates reach normal first, within a period of 6-8 hours, and that the calcium, at this time, is still too far from normal to account for the apparent recovery of many of the patients within this time limit. The data also show that the phosphates decline again to some extent but not far below the normal for the milk cow and that during this period the calcium is still increasing. This secondary decline of the phosphates may possibly be associated with the hexose phosphate metabolism of the muscles and assist in reducing the hyperglycemia to the normal sugar content.

The coincidence of recovery with the return of the phosphates to normal after udder inflation, while the calcium is still subnormal in amount, suggests a greater relative importance in getting the phosphate metabolism re-established first possibly in connection with its buffer influence in the blood. Although the calcium lags behind, its gradually increasing amount probably exerts a reinforcing effect and maintains the gains that have been made. It is difficult to explain the early recoveries on the basis of a supply of blood calcium that is still abnormally deficient.

In the foregoing, the author's conclusion differs from that of Greig, who regards the depletion of the calcium store in the blood as the cause of milk fever and the rise in calcium content of the blood following inflation as being responsible for the recovery.

Some allowance perhaps should be made for partiality of each. Greig was the first to point out the poverty of the blood in calcium in milk fever, and Fish



Three-year-old bull suffering from loin disease. This animal had been down about 42 hours when the photograph was taken. This milk-fever position is commonly assumed in loin disease. As loin disease is a phosphorus deficiency, this might be construed as evidence that milk fever, in which the same attitude is assumed, is also a phosphorus deficiency.

the first to report the phosphate poverty.

It should be noted, however, that in reaching his conclusion that restoring phosphate to the blood is more important than restoring calcium in the treatment of milk fever, that Fish disregards the findings of Greig that the normal amount of calcium in the blood is not necessary either for the prevention of or recovery from milk fever, but that a calcium content in the blood of approximately two-thirds of the normal amount is sufficient for prevention or recovery, and that this is the point in calcium restoration at

which the animal recovers. Nor could Fish have taken into consideration the more recent reports of Dryerre and Greig, Stinson and Muir, in which typical attacks of milk fever are stated to have recovered as promptly and as satisfactorily from intravenous injections of calcium gluconate as they do from udder inflation.

With the data available, it seems the impartial observer must regard the question as to whether the depletion of calcium or the depletion of phosphates is the more important in bringing about the onset of milk fever as being unanswered, and the same is true with respect to the restoration of these elements in the recovery. Until it is shown that the intravenous injection of calcium gluconate in some way increases also the phosphate content of the blood, it appears that Greig has the better of the argument and that hypocalcemia is of more importance in bringing about the onset of milk fever than is hypophosphatemia.

Effect of Casein and a High Protein Diet on Blacktongue

Goldberg and Wheeler[5] some years ago, reported the production of blacktongue in dogs by feeding pellagra-producing diets and they and others, from a long series of experiments, have reached the conclusion that blacktongue in dogs is most probably the analogue of pellagra in man, and that the P-P factor (Vitamin H) which prevents pellagra and the blacktongue preventive are identical, i.e., that blacktongue and pellagra are essentially identical conditions.

As has been previously reported in these pages, brewer's yeast is the richest of many substances so far studied in the P-P factor, the preventive of pellagra in man and blacktongue in dogs.

An experiment[6] was undertaken to ascertain if leached casein contained any of this blacktongue preventive, and likewise, the effect of a high protein diet on the incidence of blacktongue in dogs fed on a P-P deficient diet.

The conclusion is that neither casein nor the high protein ration cause any appreciable delay in the onset of blacktongue. It is notable that in the diets experimented with, when cow pea meal was included in the ration, the onset of blacktongue was delayed from an average of six weeks on the basic diet to an average of 23 weeks when cow pea meal was included. This, in a measure, justifies the rather common use of cow pea meal in the feed of dogs at veterinary hospitals.

Hygiene in Fox Farming

The prevention of diseases on fox farms is of importance not only because many ailments of foxes are preventable but also because curative treatment is less successful with foxes than with most domestic animals. One of the factors that make attempts to cure foxes unsatisfactory is that frequently the sick animals show no apparent symptoms of disease until after their condition becomes serious. This inclination to hide symptoms often precludes an early and accurate diagnosis, without which intelligent treatment is impossible. Consequently, it is important that fox ranchers keep always in mind that it is better to try to prevent diseases than to attempt to cure them.

The quality of fur produced on a fox farm is closely related to the climate. A cool or cold climate with a moderate rainfall, principally in the spring, is conducive to the production of fur of high quality. A fairly deep snow throughout the winter helps to control most of the common parasites of ranch-raised foxes. Hot summers are not detrimental if short and followed by a period of frosty weather, a time during which the animals can renew their coats.

Both shade and sunshine are necessary for the comfort and health of the animals. Every animal likes to lie in the shade during extremely hot weather to escape the direct rays of the sun. Sunshine, on the other hand, is the best natural disinfectant for

[5] Goldberger, Joseph, and G. A. Wheeler; Experimental Blacktongue of Dogs and Its Relation to Pellagra; *Public Health Reports*, Vol. 43, No. 4, January 1928.

[6] Goldberger, Joseph, G. A. Wheeler, L. M. Rogers and W. H. Sebrell; A Study of the Blacktongue Preventive Value of Leached Commercial Casein, Together with a Test of the Blacktongue Preventive Action of a High Protein Diet; *Public Health Reports*, Vol. 45, No. 6, February 1930.

helping to keep the dens, pens, and grounds sanitary.

Hanson,[7] in a bulletin, states that the greatest losses that fox farmers have to overcome are losses of their animals from contagious disease and gives directions for the location of the farm, the building of pens, and kennels, and feeding.

If pens are not to become a troublesome source of parasitic infestation and infectious diseases, they should be so constructed that the soil can be removed readily and new soil put in its place. It is a good practice to change the soil in breeding pens at least once a year.

Many losses on fox farms have resulted from careless feeding methods and the feeding of spoiled foods. Food poisoning has been responsible for losses among old as well as young fur animals. Some of the troubles that may be attributed to dietary errors are rickets, convulsions, sore eyes, abortion, killing of the young by the vixen, sterility, imperfect fur and failure to make a proper growth.

Every fox farm should be equipped with a group of quarantine pens, which should be at least fifteen feet apart, and new stock and animals returning from shows or neighboring ranches, should be quarantined for a period of at least three weeks.

When there is the slightest doubt as to the cause of a fox's sickness or death, it is a good policy to assume that the animal was affected with a contagious disease, and to act accordingly.

A satisfactory method of disinfecting fox houses and nest boxes is as follows: First remove all manure, litter, and other debris and safely dispose of it, preferably by burning; then thoroughly scrub the houses and nest boxes with a 5 per cent solution of lye (sodium hydroxide) or washing soda (sodium carbonate), using a stiff brush and being sure to clean all corners and crevices; next rinse with clear water and spray with an effective coal-tar disinfectant solution; and finally dry the house either by flaming it with a torch or by leaving it open for several hours. Soaking the ground with a hot, 5 per cent saponified cresol solution or with some other effective coal-tar disinfectant and flaming thoroughly with a large torch are good methods of disinfecting the pens for bacterial organisms.

Fox carcasses, especially those of diseased animals are most safely disposed of by completely burning them.

Clothing is best cleaned and disinfected by boiling in water. Rubber shoes and other articles that will not withstand soaking in hot water should be treated with some effective disinfectant, such as 3 per cent saponified cresol solution or a 4 per cent solution of formaldehyde.

[7] Hanson, Karl B.; Hygiene in Fox Farming; U. S. Department of Agriculture, Bureau of Biological Survey, Leaflet No. 47.

Stock Poisoning Plants of the Range[8]

This is the most elaborate and comprehensive of the discussions of live stock poisoning so far issued by the Department of Agriculture, comprising 75 pages of material, with 33 illustrations in the text and including in addition 34 full page plates in black and white, and 16 full page plates in natural colors, the object being to so describe and illustrate the plant that it may be recognized with certainty by laymen, and at the same time include the botanical name and a technical description.

While the subject discussed is poisonous plants on the range, the bulletin is of interest to veterinarians everywhere, since some of the plants discussed, as the water hemlock, are found perhaps as commonly in farming sections of the country as on the range, and other plants, as the larkspurs that are so widely cultivated as ornamental plants and have escaped cultivation in so many sections that live stock poisoning from them may occur anywhere, and further, some members of the loco family grow in localities quite remote from the range sections.

This bulletin points out again, as has been frequently pointed out before, that the prevention of live stock poisoning is largely a matter of providing the animals an opportunity to eat other food. Most poisonous

[8] Marsh, C. D.; Stock-Poisoning Plants of the Range; U. S. Department of Agriculture; Department Bulletin No. 1245.

plants are of a bitter, acrid or unpleasant taste, and animals do not voluntarily eat them, but are driven to do so because of the scarcity of grass and other plants. This condition is particularly true in the early spring, when poisonous plants come on before the others and are likely to be the only green food available for animals and furnish them their only respite from the dried forage of the past winter.

Some plants, as the hemlock, are equally poisonous to all animals. Others, as the larkspurs, are responsible for large losses in cattle, are harmless for sheep and do not poison horses under natural conditions.

The wilted choke cherry leaves and kaffir corn and cane under some circumstances will kill cattle and sheep almost instantly, but except in large quantities are harmless for horses, because of the tolerance of this animal for prussic acid.

Loco poisoning is one of the most peculiar described in the bulletin. It affects horses, cattle and sheep, but in comparison to the number pastured on it, horses are more frequently affected than other animals. The poisonous effects are manifested only after feeding on it for a period of weeks or months, or even years. Strangely enough, it seems to be a sort of habit forming drug in a certain proportion of cases and some animals after eating it for a time, come to prefer it to any other forage.

It derives its name from a Spanish word, meaning crazy, and is so called because of its mental effect upon animals having the loco habit.

This bulletin may be purchased from the Superintendent of Documents, Washington, D. C., price 35c.

Poisoning by Richweed and Goldenrod

To present a summary of the many special and somewhat detailed publications dealing with trembles in animals and milk sickness and alkali disease in man, Marsh,[9] in a recent bulletin, gives such a summary.

This disease has been recognized in this country for more than 150 years, and although isolated cases occur over quite a widespread area, it has been in the main confined to three sections, one in western North Carolina and eastern Tennessee, along the Great Smoky Mountains, the other in the southern half of Ohio, Indiana, Illinois and northern counties of Kentucky, and the third, in the far southwest, principally in Arizona, but extending into New Mexico.

In the two eastern sections, the plant responsible is the white snakeroot or richweed, *Eupatorium urticaefolium;* in the southwest, the rayless goldenrod, *Aplopappus heterophyllus.* The same substance named tremetol by Couch,[10] its discoverer, is responsible for the poisonous properties of both plants. It is not known to occur in any other plants than these two unrelated genera.

As is well known to veterinarians, these plants cause the disease termed trembles in animals. A peculiar characteristic of tremetol is it is eliminated in the milk and will cause trembles in sucklings. The milk of animals that have eaten the plant and cheese and butter made from the milk, is likewise poisonous to man, and was responsible for a great deal of illness and a great number of deaths in early settlements in the Ohio and Mississippi Valleys, where many names were applied to it, such as "milk sickness," "sick stomach," "puking fever," "fall poisoning," "swamp sickness," "river sickness," "tires," "slows," "bilious sick stomach." In the southwest, the same disease in man is known as "alkali disease," "Mexican fever," etc.

It is also quite probable that a vast number of sicknesses diagnosed as "ague" and "malaria" were also due to this cause.

Health officials have marveled a great deal that malaria is practically unknown now in sections where it was once very common, and one of the major causes of sickness and death. No satisfactory explanation has been offered for the prevalence of malaria in these regions in the past and its absence now, since mosquitos in these sections are

[9] Marsh, C. Dwight; Trembles; U. S. Department of Agriculture; Farmers Bulletin No. 1593.

[10] Couch, James F.; The Toxic Constituent of Rayless Goldenrod; Reprinted from *Journal of Agricultural Research,* Vol. 40, No. 7 and Couch, James F.; Tremetol, The Compound that Produces "Trembles," (Milk sickness); Reprinted from the *Journal of the American Chemical Society,* 51, 3617, 1929.

as common as formerly and of the same species. It is possible that the disappearance of the white snakeroot under cultivation solves the mystery.

Chronic Streptococcic Mastitis of Cows

In a report of some observations upon the frequency of mastitis among dairy cows in the vicinity of Montreal, Rosell[11] gives a description of his findings in the examination of 300 cows.

Specimens of milk for examination were taken from each quarter and handled separately. The specimens were given biological (inoculation), bacteriological (cultural), microscopic and chemical examination. Each cow from which the specimens were taken was given a clinical examination. The prevalence of mastitis in these cows was astonishing. Mastitis of all types was found, but chronic streptococcic mastitis which was the principal object of the study was by far the most frequent in occurrence and the most important, although this was not realized by the dairymen since very frequently the cows exhibited no clinical symptoms.

A tendency of this form of mastitis was to grow progressively worse and in time destroy the value of the animal as a milk producer. The disease is always contagious, and of particular danger to the milk supply, since even the most experienced veterinarian is frequently unable to detect cases from clinical examination.

The effect of the contagiousness of this ailment was shown by the fact that it occurred in groups in the larger dairies. That is, in cows occupying contiguous stalls.

Affected animals in some herds showed a high resistance to the organism, and although the disease was present in the udder and progressing, virulent organisms were found only in the "strippings," and at times it was necessary to repeat the bacteriological examination two or three times in order to find the infectious agents.

Advanced forms of chronic streptococcic mastitis were readily recognized clinically, the symptoms being similar to those of acute mastitis, induration, edema, atrophy, adenitis, excitement and fever.

Samples of findings on different farms are:

On Farm No. 5, all cases were detectable by clinical examination.

On Farm No. 9, there was only one healthy cow in the lot of 14. All the others were infected in all four quarters.

On Farm No. 15 (four cows), all were infected.

Of all the 300 cows examined, 53% were infected with mastitis in varying forms, 40% were healthy, and 7% were doubtful cases. The milk from all of these farms was going on the market, some of it for creameries, some of it for use as fluid milk, and some even to distributors of certified milk. The milk was often found resembling a serous fibrinous mucus, a hemorrhagic or purulent liquid. It was being mixed with other milk and going into channels for human consumption as butter, cream or fluid milk, and the author finds here perhaps the explanation of much of the infant mortality. In milk regions of Europe, more importance is attached to the control of mastitis than all other maladies of cattle, and the author believes that not sufficient attention is given to this great economic and public health problem in Canada.

The Creolin Therapy of Coccidiosis of Rabbits

In this paper the author[12] gives a prescription by means of which creolin can be given to rabbits without resort to forcible administration of any kind. Rabbits are said to drink the mixture readily if kept on very dry food, and if water is withheld.

[11] Rosell; Jose Maria; Quelques Resultats sur l'Etude de la Mastite; Revue de l'Institut Agricole d' Oka; Vol. IV, No. 2, March & April, 1930.

[12] Krijgsman (B. J.). De creolinetherapie der konijnencoccidiosis.—*Tijdschr. v. Diergeneesk.* 1929. Sept. 15. Vol. 56. No. 18. pp. 990-993. With 1 fig. Reprinted from *Tropical Veterinary Bulletin.*

Creolin .....2.5 cc.
Sodium bicarbonate .....4 grams.
Simple syrup .....400 cc.
Water .....2,000 cc.
Oil of aniseed.....4 drops

Affected animals (about 8 weeks old) are given 25 cc. of this mixture daily for three consecutive days.

Leucocyte Counts in Rabbits

Dr. S. C. Cheng,[14] a former student of mine and a graduate student of Johns Hopkins University, has made an exhaustive and most interesting study on the above subject, carrying out a large number of experiments on rabbits and counting the leucocytes as well as some experiments with a common disease of rabbits caused by two organisms, *Bacillus bronchisepticus* and *Bacterium lepisepticum* and the leucocytic reaction.

The total number of leucocytes in the blood stream varies according to age. The first two days of life the range may be as great as 400 to 2,280 and from 6 months to 12 months of age from 2,680 to 12,200. The difference in sex is not a factor. There is also great variation in the different members of the litter even when kept under the same environment. There is also a characteristic rhythm in the leucocytic variation of rabbits. The number of leucocytes in the blood of the rabbit undergoes definite daily variations. There seems also to be a tendency towards two daily elevations.

Leucocytic variations are also dependent on the state of digestion. Rabbits fed regularly have much higher counts than those fasted.

Digestion leucocytosis occurs from 3 to 5 hours after the digestion of food. Dextrose has an influence on leucocytic variation.

A slight leucocytosis occurs during early stage of pregnancy, then a gradual decline and during the fourth week leucopenia. The change of position of the rabbit from "back up" to abdomen up causes a type of leucocytic reaction in the blood stream which depends on the time in this position.

Snuffles is one of the common diseases of rabbits. The transmission is easy. The organisms associated with it are *Bact. lepisepticum and B. bronchisepticus.* The principal symptoms are nasal discharges and sneezing. The author gives the following summary:

1. A study has been made of 44 rabbits during the first 10 days of the carrier state of infection with *Bact. lepisepticum* and *B. bronchisepticus.* During this time 12 of the 44 developed a moderate leucocytosis, an increase of 4,000 cells per cmm.; 14 showed a slight leucocytosis; 4 had a marked leucopenia, and 3 a slight leucopenia; 10 showed no definite reaction. The two organisms cause different types of reactions. The leucocytosis caused by *B. bronchisepticus* is of longer duration, reaching its maximum in 8 to 10 days. When leucopenia occurs it is slight and lasts only 1 or 2 days. The leucocytosis following infection with *Bact. lepisepticum* lasts only 2 to 3 days, but there is sometimes a pronounced decrease in the number of leucocytes which lasts for several days.

2. The number of leucocytes in the blood stream of young rabbits can be increased transitorily by intranasal instillation of killed *Bact. lepisepticum.*

3. Rabbits with a certain degree of immunity against *Bact. lepisepticum* give a more prompt leucocytic response than non-immunized rabbits when they are inoculated with the same amount of this organism intranasally.

4. The duration of the carrier state of *Bact. lepisepticum* in the nasal passages of rabbits was about 22 days.

5. During the first eight days of the carrier state of *B. bronchisepticus* and *Bact. lepisepticum,* the differential counts are modified. There is during the first 1 to 3 days an increase both relative and absolute of the pseudo-eosinophils, and a decrease of the lymphocytes, and in some cases a definite increase of the monocytes. After this period, these changes return to normal.

6. The importance of the leucocytic reactions during the carrier state of snuffles has been discussed and it has been pointed out that this state should be avoided when rabbits are used for a study of leucocytic reactions.—L. H. Pammel.

[14] Cheng, S. C.; Leucocyte Counts in Rabbits, Observations on the Influence of Various Physiological Factors and Pathological Conditions; Reprint from the *American Journal of Hygiene,* Vol. XI, No. 2, March 1930.

CHANGES IN ARMY VETERINARY SERVICE

Regular Army

Colonel Ray J. Stanclift, upon his own application, has been ordered to proceed to his home on or about June 12, 1930, to await retirement.

Lt. Colonel Herbert S. Williams has been ordered to proceed to his home on or about June 1, 1930, to await retirement, for physical disability.

Captain Allen C. Wight is relieved from further duty at Fort Sam Houston, Texas, effective on or about June 25, 1930, and assigned to duty at the Army Veterinary School, Army Medical Center, Washington, D. C.

Captain Solon B. Renshaw is relieved from further duty at Fort Meade, S. D., and directed to report to the commandant, Army Veterinary School, Army Medical Center, on or about August 25, 1930, for duty for the purpose of pursuing a course of instruction.

Captain Burlin C. Bridges is relieved from further duty at The Cavalry School, Fort Riley, Kansas, and directed to report to the commandant, Army Veterinary School, Army Medical Center, on or about August 25, 1930, for the purpose of pursuing a course of instruction.

Captain Stanley C. Smock is relieved from further duty at the Presidio of San Francisco, Calif., and directed to sail on transport scheduled to leave that port for New York, N. Y., on or about July 30, and upon arrival directed to proceed to Fort Hoyle, Md., for duty.

Captain Claude F. Cox is relieved from further duty at Ft. Hoyle, Md., and assigned to duty at the Army Veterinary School, effective on or about August 25, 1930, for the purpose of pursuing a course of instruction.

2nd Lieutenant Ralph W. Mohri is relieved from further assignment and duty at Fort Benning, Ga., effective on or about June 25, 1930, and directed to proceed to Washington, D. C., and report to the commandant, Army Medical School, Army Medical Center, for duty.

Orders have been amended assigning 2nd Lieut. Harvie R. Ellis to duty at Fort D. A. Russell, Texas.

Orders have been amended assigning 2nd Lieut. Arvo T. Thompson to duty at Front Royal quartermaster depot, Front Royal, Va.

Reserve Corps

New acceptances:

Rankin, Fay G., 2nd Lt., 310 Columbia Blvd., St. Helens, Oreg.

Nichols, J. H., 2nd Lt., 540 Prairie St., Paris, Ill.

Promotions:

Barr, Albert Clyde, to Major, 3227 Tracy St., Kansas City, Mo.

Roberts, John J., to Major, 603 James Street, Columbus, Wis.

Bibens, David H., to Capt., 8246 Woodland Ave., Kansas City, Mo.

Davis, Elmer N., to Capt., Fort Scott, Kans.

Dietrich, LeRoy E., to Capt., 1820 Parker St., Wichita, Kans.

Matter, Anthony J., to Capt., Esterville, Ia.

Strickler, Don B., to Capt., P. O. Box 1104, Columbus, Ga.

Van Zandt, Earl J., to Capt., 714 Marshall Ave., Marshall, Mich.

Heath, McKenzie, to 1st Lt., County Health Dept., Decatur, Ala.

Picht, Clyde W., to 1st Lt., 268 W. Wyoming St., St. Paul, Minn.

ELEVENTH INTERNATIONAL VETERINARY CONGRESS, LONDON, 1930

The International Veterinary Congress to be held at the Central Hall, Westminster, London, S. W. 1, from the 4th to the 9th of August, 1930, is receiving support from foreign governments in all parts of the world. Official delegates have already been appointed by the following countries: Canada, New Zealand, Commonwealth of Australia, South Australia, Western Australia, Union of South Africa, Irish Free State, Northern Ireland, Gold Coast, Kenya, Uganda, Tanganyika Territory, Northern Rhodesia, South African High Commission Territories, Swaziland, Nigeria, Malay States, Straits Settlements, Iraq, Albania, Austria, Belgium, China, Denmark, Finland, Ecuador, Germany, Greece, Guatemala, Holland, Latvia, Nicaragua, Norway, Roumania, Sweden, Turkey, U. S. A., U. S. S. R., Venezuela, Yugoslavia.

In addition to the scientific work of the congress, there will be arranged a number of excursions to research institutes, veterinary colleges, racing and breeding establishments. These will take place during the week following the congress.

On Sunday, August 3rd, there will be a reception in the evening (with music and refreshments) free to all members at the Mayfair Hotel.

The opening meeting of the congress which will be attended by the minister of agriculture and fisheries will be held in the morning of Monday, August 4th, and thereafter general meetings will be held each forenoon and four sectional meetings will be held simultaneously each afternoon.

On Tuesday evening, August 5th, there will be a Conversazione at the Natural History Museum, South Kensington, to which all members will be invited. There will be music and light refreshments.

On Wednesday evening, August 6th, the British Government offers a banquet to officially appointed delegates, not exceeding 200 in number. The minister of agriculture and fisheries will preside.

On Thursday evening, August 7th, there will be a banquet at the Connaught Rooms, Great Queen Street, London, W. C. 2, open to all members. The price of the dinner inclusive of wines will be 25 shillings.

On Friday evening, August 8th, there will be a reception given by the Lord Mayor and Corporation of the City of London at Guildhall. Special invitations will be issued to a limited number of members for the function.

Applications for membership of the congress should be addressed to Dr. Fred Bullock, general secretary, Eleventh International Veterinary Congress, 10, Red Lion Square, London, W. C. 1, England. The membership fee is $7.50 and will include a printed report of the meeting containing all papers presented at the meeting.

NEW YORK VETERINARIANS INVESTIGATE VETERINARY BROADCASTING

The regular quarterly meeting of the Hudson Valley Veterinary Medical Society was held at the Lederle Laboratories, Pearl River, N. Y., on May 14th.

By special invitation extended through Doctor Eichhorn, the veterinary medical societies of New York County, New Jersey and Connecticut joined with the Hudson Valley Society in this meeting. As a result of this invitation nearly 200 were present, including a considerable number of ladies.

After being shown through the spacious laboratories of the Lederle Company, the party enjoyed an excellent luncheon served by the young ladies of Lederle.

The meeting then convened and the guests were welcomed by Dr. Eichhorn following which a short business session was held. This included discussion of the action of the Legislative Committee of the Society with respect to publicity, particularly by radio, of veterinary information by persons not qualified to give same. It was the consensus of opinion that all such publicity should be under the supervision of a competent authority or organization. The president was authorized to appoint a committee of five members to cooperate with WGY radio station with respect to this and similar matters.

The society also approved the action of the Legislative Committee in its opposition to proposed legislation authorizing the investigation of diseases of poultry by the State College of Agriculture A resolution was passed placing the society on record as opposed to investigation of poultry diseases by agencies other than those properly trained and equipped to undertake such research.

Following the business session W. H. Wright of the Bureau of Animal Industry, Washington, D. C., gave an excellent paper on parasites, pointing out the most common affecting domestic animals and some suggestions as to treatment.

H. J. Milks of the New York State Veterinary College, followed with some practical suggestions as to treatment of small animals—surgical and otherwise.

It was decided to hold the next meeting at West Point Military Academy on August 13th, 1930.

EXAMINATION FOR ILLINOIS VETERINARIANS

The laws of Illinois require that all cattle under quarantine be tested by an accredited veterinarian before they can be legally released, and this fact, together with the policy of the State Department of Agriculture of placing on the list of approved Assistant State Veterinarians all those who have passed this examination, should be sufficient incentive for all practitioners to qualify for this work.

The next examination in Illinois for accredited veterinarian and Assistant State Veterinarian will be held June 26, 1930, and for the convenience of applicants, will be conducted at three different points. Dr. J. J. Lintner will be in charge of the examination held at the Union Stock Yards, Chicago; Doctor Paine will be in charge of the one held at the National Stock Yards, East St. Louis, and those desiring to take the examination in Springfield may report to the Capitol Building.

The summer meeting of the Illinois Veterinary Medical Association will be held at Bloomington, Illinois, on July 8 and 9. Every veterinarian in Illinois should attend this meeting. Veterinarians are invited to bring their wives and families and make the meeting a vacation. A good social time is planned. Even a game is scheduled for the golfers. At this time, everything points to the greatest Illinois meeting of all times. Furthermore, the Association needs the counsel and advice of its entire membership. Remember the dates—July 8 and 9.

OKLAHOMA COUNTY VETERINARIANS ORGANIZE

A new organization of veterinarians which will be known as the Oklahoma County Veterinary Medical Society was formed at a picnic held for veterinarians and their families at Lincoln Park near Oklahoma City, June 27. This organization of veterinarians representing nearly every branch of the profession, from Oklahoma City and nearby points will hold monthly meetings in Oklahoma City. While the principal object of this newly formed society is educational and the discussion of strictly professional problems, it is hoped that some of the meetings can be devoted to purely social affairs.

CALIFORNIA VETERINARIANS SPEED TOURISTS

The Bay Counties Veterinary Medical Association held its monthly meeting on May 13th, 1930, at the Athens Athletic Club, Oakland, California. This was a specially arranged farewell dinner meeting in honor of Doctors E. M. Dobbs, F. M. Hayes, G. H. Hart, and C. B. Outhier, who are to leave about June 1st, 1930, on a European tour to attend the Eleventh International Veterinary Congress at London